THE CANADIAN Horticulturist.

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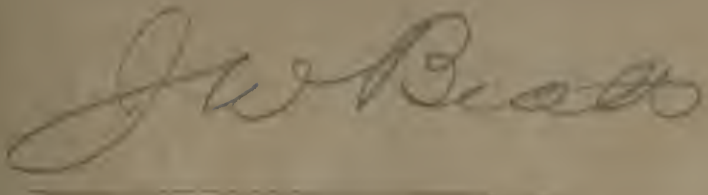

GOVERNOR WOOD

THE

CANADIAN HORTICULTURIST,

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THE FRUIT GROWERS' ASSOCIATION OF ONTARIO.

VOLUME I.

EDITOR :

D. W. BEADLE.

ST. CATHARINES

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The Canadian Horticulturist.

VOL. I.] ST. CATHARINES. [NO. 1.

THE CANADIAN HORTICULTURIST.

The Directors of the Fruit Growers' Association have long felt the importance of having a monthly publication as a medium of communication between the members, and a means of imparting information on subjects of interest, more frequently and promptly than can be done by the Annual Report. And now, after careful deliberation, they have decided to make the experiment, and commence to-day the issue of the HORTICULTURIST, in the hope that it will find favor with the members. It will be devoted chiefly to the publication of such information as is sought after by those who are interested in fruit culture, yet not neglecting those kindred subjects which are closely connected with that pursuit. The lover of fruits is also usually a lover of flowers, and delights to surround the house with a well kept lawn. It will therefore contain occasional articles intended to guide and help those who seek to cultivate flowering plants and shrubs, and to make their grounds bright with summer flowers. And if the less showy, but not less important vegetable garden should have a place now and then in these pages, there are those among the readers, it is believed, who will welcome any timely information in this department also.

But while the Directors will spare no pains to make the HORTICULTURIST acceptable and profitable, it will nevertheless be, in a very large degree, what the members shall make it. If they shall use it as the medium through which they tell each other of success and of failure with particular fruits, flowers, trees, &c., and in which they ask for information upon doubtful points, then will it become what the Directors hope, a mirror, in which is reflected continually the Horticultural progress and skill of Ontario. They ask therefore that the members will regard it as their publication, put forth in their interests, to help them in whatever way it can, and to be used by them for the promotion of Horticulture in this Canada of ours.

THE BURNET GRAPE.

As long ago as in the Autumn of 1873, Mr. P. C. Dempsey, Albury, Prince Edward County, exhibited at the Fruit Growers' meeting a few bunches of a grape that on account of the beauty of its appearance, its earliness of ripening, and delicacy of flavor, attracted much attention and called forth universal praise. In due time a committee was appointed to visit Mr. Dempsey's grounds and examine the vine and fruit; and such was the character of their report that the Directors requested Mr. Dempsey to propagate it largely, so as to be able to supply the Association with vines sufficient to give one to each member. Since this arrangement was made, the members have become familiar with its general appearance through the colored lithograph which was presented to them in the Report for 1876. Mr. Dempsey has given to this excellent grape the name of our honored President, and henceforth it will be known in the Pomological world as the "Burnet" grape.

This grape was raised by fertilizing the Hartford Prolific with pollen from the Black Hamburgh. The vine seems to possess much resemblance to the Hartford Prolific, is a vigorous grower, of robust and healthy constitution, very productive and hardy. The fruit is very like that of the Black Hamburgh, the bunch is large, slightly shouldered; berries large, sweet, and delicately flavored, having nothing of the foxiness of the Hartford Prolific. The flesh is tender, almost melting, with none of the tough pulpiness of the most of our hardy grapes. It also ripens early, somewhat earlier than the Hartford Prolific, and considerably before the Concord. Our members are to be congratulated on the reception of so valuable a grape—one that gives promise of being held in lasting estimation as a variety of unusual excellence, and adapted to general cultivation in nearly all parts of our Province. It will be sent to all who are members this year as early in the Spring as the season will permit.

WINTER MEETING.

The regular Winter meeting was held in the City of Hamilton, on Wednesday, the sixth of February. The President, Rev. R. Burnet,

took the chair; and after the reading of the Minutes by the Secretary, introduced to the members Mr. Craig, Secretary of the Agricultural and Arts Association, of Ontario, and Mr. J. B. Jones, delegate from the Horticultural Society of Western New York. The gentlemen were most enthusiastically welcomed by the members, and addressed the meeting in a few well-timed words of hearty interest in the object of our Association.

Mr. Chas. Arnold—our accredited delegate to the Winter meeting of the W. N. Y. Horticultural Society—read his Report of what he heard and saw on that occasion. He stated that there was an average attendance during the two days of the meeting, 23rd and 24th of January, of about one hundred and forty intelligent fruit growers from all parts of the State of New York, and adjoining States. The evening session of the 23rd was largely taken up with a discussion upon the best means of destroying the Codlin Moth. One gentleman spoke for nearly two hours, advocating the merits of his patent invention for catching the larvæ of this Moth. (Our cousins are highly gifted in the talking line, and are an exceedingly inventive people.) This invention consisted of a piece of water-proof paper or pasteboard, lined with cotton batting. This was to be placed, in the form of a band of about three inches in width around the trunk of each tree, with the cotton batting next to the tree, and occasionally taken off and the larvæ found therein destroyed. Another man had applied for a patent for substantially the same thing, only in this case the cardboard was punched full of holes, and the cotton batting pressed into the holes. It was fully admitted by all who took part in the discussion, that the Codlin Moth was a very serious pest, and that every owner of a pear or apple tree should wage a war of extermination against it. The larvæ will take refuge under anything that gives them shelter and security, hence any contrivance that offers them a hiding place will be sought by them, and can be used as a trap for catching and killing them.

A very convenient trap has been made by fastening a strip of old carpeting or of cotton flannel around the trunk of the tree, and removing it every week or ten days and passing it through an old clothes-wringer, so as to crush the larvæ that have taken refuge in it, and then putting it back around the tree. Those who desire to inform themselves more fully on the subject of the Codlin Moth, will find much valuable information in the entomological part of the Report for 1870, page 91;

for 1872, page 5; for 1874, page 43; and those who have only the Report for 1877, will find the insect figured in all its stages of existence at page 46 of the entomological part.

Mr. Arnold further reported that the morning session was taken up by the reading of essays, some of them containing much valuable information. The essays were upon our public roads; gathering, marketing, and preserving apples; small fruits; spring flowering shrubs; the kitchen garden; horticultural botany; roses, and weeping or drooping trees. But few fruits were exhibited. A plate of the Columbia pear was the finest plate of Winter pears he ever saw, judging from the appearance merely, as no opportunity was given him to test their flavor.

Reports from different parts of the State shewed that an immense revenue is derived from the sale of apples. Niagara County alone reported sales amounting to three hundred thousand dollars. Other counties reported as high as five hundred thousand dollars worth of apples, besides large sums for pears and other fruits.

Mr. Arnold closed his Report by expressing the hope that the day was not far distant when reports similar to those made to the Western New York Society, will come from many counties in Ontario, where both soil and climate are certainly equal to any portion of the State of New York; and ventured the prediction that in view of our already great and yearly increasing facilities for shipping, the growing of first class fruit in Ontario must be profitable for many years to come.

The subject of fruit statistics, brought before the meeting by Mr. Arnold's closing remarks, was briefly discussed, and Messrs. Burnet, Beadle and Bucke were appointed a Committee to interview the Government, and devise means for obtaining reliable statistics of the quantity and value of the fruits raised and exported from Ontario. A resolution was also passed requesting the railways to incorporate in their annual report on the crops, the condition and extent of the apple crop.

The discussion now turned upon the Canker Worm—an insect pest that is doing considerable damage to apple orchards in some sections. A full description of the Canker Worm, and engravings shewing the insect in all its stages, from the egg to the moth, will be found in the entomological part of the Report for 1870, at page 86; also a very full article on the Canker Worms in the same part of the Report for 1875, page 25. Mr. Bowman, of Hamilton, said that for the past two years

they had stripped the leaves completely off from some two or three hundred of his apple trees—they did their work early in Spring, and disappeared about the 15th of June. He had read that syringing the trees with a mixture of Paris Green and water was complete destruction to the worms. Mr. Woolverton, of Grimsby, had suffered severely from the Canker Worms, and had tried several means of preventing their ravages. He had tied bandages around the trunks of the trees and smeared them with pitch tar, and found this a very easy and successful method of destroying the female moths. The tar must be renewed as often as it becomes hard, or the moths will crawl over it. Last year he had applied Paris Green in water with a garden engine, and found that also very beneficial. This must be done very early in the season, as soon as the buds burst, to be effectual. He had also tried fall ploughing of his orchard in the end of October, and thought this also had been beneficial, by lessening their numbers. Mr. Smith, of Glanford, suggested that a mixture of castor oil and resin, —such as is used in making the sticky fly-paper—might be found useful, though in cold winter weather it would become too hard. Molasses mixed with tar was also suggested, but rains will wash the molasses out and leave only the tar. D. W. Beadle, of St. Catharines, remarked that the use of some sticky substance, over which the wingless female moths could not crawl, would be found to be the most certain and convenient method of preventing their ravages.

P. E. Bucke, of Ottawa, read an able paper on irrigation, which was heard with marked interest and attention. This paper has been handed to the Secretary, and will appear in full in the Annual Report.

A. M. Smith, of Drummondville, called attention to the Yellows in peach trees, a disease which has been very destructive to the trees in many places, and was making its appearance in this Province. His views are given more fully in an article on this subject which will be found in this number.

The meeting proceeded to the consideration of the benefits of shelter to peach orchards, and the trees which are the best to plant for this purpose. C. M. Honsberger, of Jordan Station, had planted his peach trees between the rows of apple trees, and let them take their chances, but now, however, had been induced to plant some evergreens on the south-west side for a wind-break, and had set out a row of Norway spruce. W. Haskins, Hamilton, spoke of fifty acres of peach orchard

at Navy Island in which he was interested, and said that the best trees and the best fruit were to be found in that part of the orchard that was sheltered. He was also convinced that good cultivation of the soil was just as necessary for the production of fine peaches as for anything else. A. M. Smith would protect peach orchards on the south, south-west and west. W. Holton, Hamilton, remarked that the peach orchards about Brantford seemed to thrive best on a poor soil where they were sheltered, and that in the rich hollows they did not succeed. He thought that our native arbor-vitæ, or as it is often called, white cedar, and the native white pine, and black spruce were excellent trees to plant for shelter, and easily procured. Chief Johnson, of Tuscarora, thought the sugar maple an excellent tree to plant for shelter. P. C. Dempsey, Albury, advocated planting the basswood, because it grew rapidly, afforded as good shelter as any deciduous tree, and from its blossoms the bees gather the best honey, fully equal to, if not better, than white clover honey. W. McKenzie Ross, Chatham, spoke favorably of the Scotch pine, because it was a hardy tree and rapid grower. J. Croil, Aultsville, thought that the Norway spruce was the most valuable tree for shelter belts, it being even a more rapid grower than the Scotch pine, very dense in its habit and symmetrical in form. D. W. Beadle, St. Catharines, concurred fully in this opinion; he had seen this tree planted around a large field devoted principally to a pear orchard; in a very few years it had attained to a height of ten or twelve feet, and was quite dense. He believed also that at present it was the cheapest tree that could be planted, cheaper than gathering up the white pines and spruces of our forests, for the reason that the Norway spruce having been several times transplanted, was very sure to grow, and could be bought, of small sizes, about as cheap as the cost of digging up the native trees. W. Roy, Owen Sound, spoke favorably of the Norway spruce, Austrian pine, and Scotch pine as shelter trees. J. B. Jones, Rochester, N. Y., spoke highly of the Norway spruce, saying that it was a hardy tree, easily transplanted, easily kept within any desired limits, and comparatively inexpensive. The European larch was also a graceful tree, of rapid growth, and very cheap.

On the subject of fertilizers for fruit trees, Mr. Robertson, of Oakville, said that in sandy soils he had found that the application of clay around the trees proved to be very beneficial and lasting in its effects. L. Woolverton, Grimsby, had also used clay around trees growing in

sandy soil with marked benefit. P. E. Bucke, Ottawa, suggested the use of mineral phosphates, and spoke of the large beds which had been found near Ottawa, whence considerable quantities were being shipped to Europe. J. McGill, Oshawa, thought wood ashes to be one of the very best fertilizers for fruit bearing trees. C. Arnold, Paris, preferred barn-yard manure, this he considered preferable to all other fertilizers, believing it contained all that was needed both for the tree and the fruit. J. B. Jones, Rochester, N. Y., would apply lime and ashes liberally to orchards growing in heavy soils, occasionally plow under some green crop, and apply barn-yard manure. He remarked that the practice of composting barn-yard manure, and allowing it to stand some time in large heaps, where it would ferment and decay, was now believed to be erroneous, and that the best results were obtained by applying it to the land as quickly as possible, without allowing any opportunity for fermentation.

The Report of the Committee on fruits was read. This occasioned a short discussion on the value of the Ben Davis apple. W. Holton, Hamilton, remarked that he feared many planters of this variety would be disappointed in the quality of the fruit, it not being equal in this respect to many of our older sorts. The tree was hardy, and it might on that account be a valuable sort to plant where the higher flavored kinds could not be grown. P. C. Dempsey, Albury, remarked that one of his neighbors had found it a very profitable orchard variety.

The Summer meeting will be held in the city of St. Catharines, on Wednesday, July 10th, at ten o'clock A. M.

CHINESE PRIMROSES.

We commend these beautiful plants to our readers for the reason that we have found them among the most desirable and satisfactory for window cultivation of all the various things we have grown in the sitting room. They are very abundant bloomers, and keep up a succession of flowers for many months, so that from December to May they are continually bright and beautiful; they are easily grown by the merest novice in plant culture, requiring only to be kept from the frost, and regularly supplied with water. They can be had of several shades, red, pure white, and striped red and white, and both single and double.

ONE OF OUR COMMON INSECTS.

BY W. SAUNDERS, LONDON, ONT.

Most of our readers will recognize in the accompanying cut, FIG. 1, an object with which they are more or less familiar, although they may know little of its origin or the nature of its contents.

FIG. 1.

During the Winter months, when our trees and shrubs are leafless these curious silky structures are readily seen, and are found on many different trees and shrubs, but perhaps oftener on the twigs of apple trees and currant bushes than anywhere else. They are the cocoons of a very large and beautiful moth, called the Cecropia moth, (*Attacus Cecropia,*) which thus spends the winter in a quiet and torpid condition.

If you cut a twig on which one of these cocoons has been hung, and shake it, you will feel that it contains a heavy body which is to some extent moveable, and you can feel a slight dull thud as it falls from side to side. This winter home of the insect is about three inches long, shaped something like a pod, tapering towards each end, and invariably fastened lengthwise to the twig. It is of a dirty brown colour; the exterior is very close and papery like, although much wrinkled, and is quite impervious to wet. Let us look inside of it; underneath the close exterior we find a mass of loosely woven threads of strong yellow silk which surround the dark brown chrysalis and fill the intervening space, the upper end of the cocoon where the moth is eventually to make its escape, being much looser in texture than the other portions. The crysalis itself, the object of all this care, is smooth, of a dull brown colour, and about one and a half inches long, and $\frac{5}{8}$ of an inch broad in the widest portion.

Early in June—or if the cocoon is kept in a warm room, many weeks before this—a marvellously beautiful moth issues from this snug enclosure. When the time has come for its escape, the shelly structure of its prison-house is rent, split open along the back, and at once restless movements begin within; the struggling creature as it tries to free itself, making a scratching noise as it tears away the silken bars which stand between it and the outer world, and this noise can be distinctly heard at some distance from the object. At this juncture a fluid is secreted from the mouth of the insect which so softens the silk as to make the escape of the moth a comparatively easy matter, while without this wise provision it might remain in its cell and exhaust itself in fruitless efforts to get out. Presently the fore legs appear, thrust out of the upper end of the cocoon, then the head crowned with its beautiful feather-like antennæ; and very soon a heavy looking object with a large plump body and soft clumsy little wings is drawn slowly out of the orifice, and stands before you in the free air.

The first care of the moth is to place itself in such a position that its wings may hang downwards, the only favourable posture for their proper development, then a rapid process of growth or expansion begins, resulting in full maturity in about half an hour, during which time the wings enlarge from the size of an ordinary humble bee until they measure from five to six inches across.

This magnificent creature is nicely represented in Fig. 2. Both front and hind wings are of a rich brown; the anterior pair greyish, shaded with red, while the posterior are more uniformly brown; about the middle of each of the wings there is a nearly kidney-shaped white spot, shaded more or less with red, and margined with black. A wavy dull red band crosses each of the wings, bordered within on the front wings, more or less faintly with white, while on the hind pair the band is widely and clearly margined with the same colour. The outer edges of the wings are of a pale silky brown, in which, on the anterior pair, runs an irregular black line which on the hind wings is replaced by a narrow, double broken band of the same hue. The front wings next to the shoulders are dull red with a curved white and black band, varying in distinctness in different specimens, and near their tips there is an eye-like black spot with a bluish-white crescent. The upper side of the body and the legs are dull red, with a wide band behind the head,

and the hinder edges of the rings of the abdomen white; the under side of the body is also irregularly marked with white. Below, the wings are very much like the upper surface, but paler.

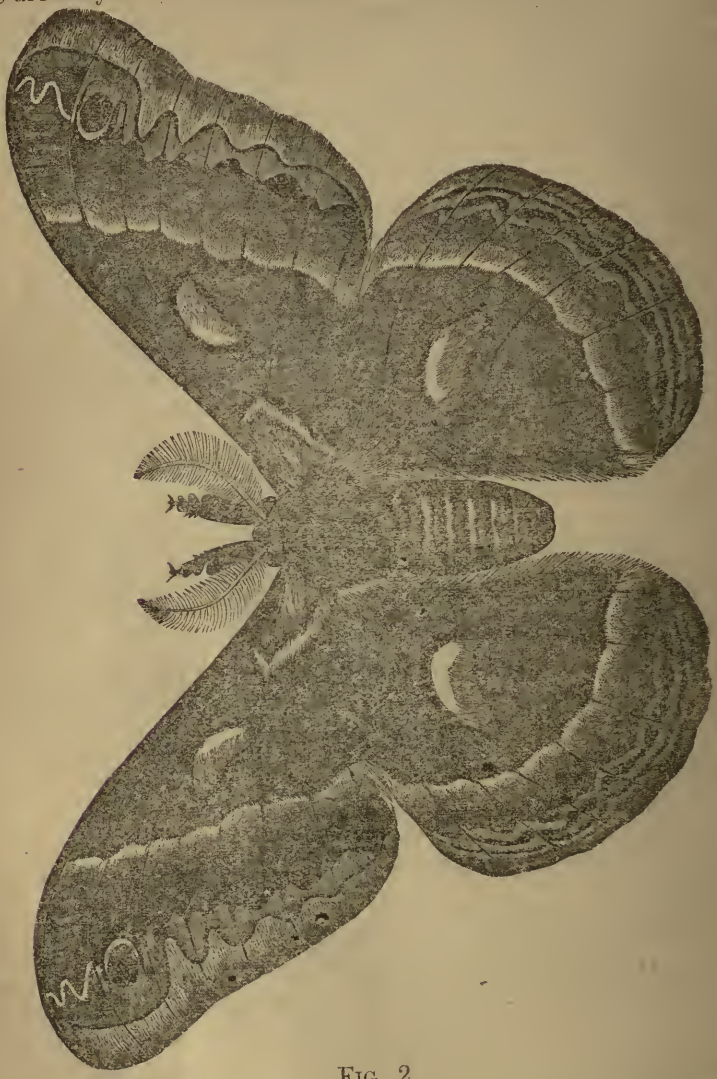

FIG. 2.

These gay creatures are nocturnal in their habits, flying like bats in the dim twilight and dusky night. After pairing, the female deposits

her eggs, numbering 200 or more, a process which occupies some time, as the eggs are not laid in patches, but fastened singly with a glutinous material, usually on the under side of a leaf. The eggs are about one-tenth of an inch long, nearly round, of a dull creamy white colour, with a reddish spot near the centre. They usually hatch in about a week or ten days.

The subsequent history of this curious and beautiful insect will be given hereafter

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SHELTER.

BY REV. R. BURNET, LONDON, ONT.

Few situations are there but require shelter, either from the bleak and stormy winds of Winter, or from the bare and neglected look of a place without trees. A very little thought and planning would accomplish all that is wanted. Having matured a plan for ornamentation and shelter, the best way to carry it out is to do it piecemeal; continuous planting is much more satisfactory to the man of taste than making a rush at the work, and then leaving it very much to take care of itself. This continuous planting, too, commends itself to the pecuniary means of most people.

To a large extent the farmer and amateur gardener should be his own nurseryman. As a general rule, the trees that are most recommended and used for shelter are easily grown from seed; the requisite is to know the *how* of growing them. At Arkona, Mr. B. Gott, the orchardist, raises an erection about three feet from the ground and covers it with brush; the seeds are sown, spring up, and make a good growth even in the course of one season. Let them be transplanted in due time in some suitable spot, and all trees necessary for shelter are at hand.

Wind-breaks, either for shelter or ornamentation, are of great moment to the fruit grower, in fact almost essential. The one tree that stands out pre-eminently is the Norway spruce, *(abies excelsa;)* its hardiness, rapidity of growth, and ease of cultivation strongly recommend it; for a windy country, or where ice and snow are apt to injure the trees, the elasticity and strength of the branches render them safe from damage. Planted in rows for screens, eight feet apart is not too close.

Perhaps the Scotch and Austrian pine follow next, as the most valuable trees for shelter. Planted alternately they make a fine appearance; the former very dark in the foliage, and the latter a whitish green. They are both hardy, and afford a large amount of protection.

In Europe we have seen the Himalayan pine interspersed among other varieties with good effect.

For a hedge, nothing can equal the arbor vitæ, or white cedar; it forms a perfect wind-break and stands our Winters perfectly. The planting must be closely done, and if slightly pruned in the tips, the spray becomes intensely thick and impervious.

At our Winter meeting in Hamilton, Mr. Holton urged the planting of our commnn white pine—what might be called the pine of the country. It is one of the best trees for shelter, however you look at it; perfectly hardy, moderately quick in growth, acclimatized, and valuable for its timber. The same gentleman also mentioned the hardy black spruce.

In Essex, when recently there, and also in the county of Elgin, we saw the European larch planted as a wind-break; its growth is something wonderful, and the shelter perfect; although deciduous, the spray is so small and close that it cuts the wind, and makes a complete calm on the sheltered side. We might add perhaps, that this variety should be planted in the Fall.

At Tyrconnell the walnut is used for shelter, and a noble screen it makes. It is planted on Mr. Comis' grounds in triple rows. Few finer sights can be seen when in the full season of flowering and fruiting. We greatly wish that its popularity were on the increase, the more especially so, as our soil in many districts is admirably adapted for the walnut. The nuts should be planted as soon as they fall, four feet apart, and three inches deep. The first year they will make a growth of fourteen or fifteen inches, the next, three feet, and in the third year they will be of sufficient size to render cultivation unnecessary.

Many advocate the planting of the sugar maple, and the soft maple; both have their advantages, being deciduous however, they cannot compare to the many varieties of the coniferæ.

In answer to the question, when, and how to transplant evergreens, much has been, and will be said. Some say, just when the buds first begin to swell; others affirm as strongly and persistently in the latter end of May and during the month of June. One or two requirements are

absolutely necessary to insure its growth; first, see that the earth is firmly in contact with the roots. Mr. Meehan, of Philadelphia, uses beaters in planting; we are persuaded that the plan is a good one. Mulching is an essential; with proper mulching a single tree need not be lost.

Regard is also to be had to the particular district where the shelter is needed. In some of our western counties, in many parts of Essex and Kent, the white ash *(Fraxinus Americana,)* might be planted with beneficial results; the arboriculturist looking to future recompense, as well as to present benefit; its strength, elasticity, and durability making it invaluable for the manufacture of agricultural implements. The walnut, butternut, and larch are well adapted for the extreme points of the western peninsula. Norway spruce flourishes everywhere, and the same may be said of the Scotch and Austrian pine.

A cheap and effective wind-break can be formed by protecting the trees that spring up around uncultivated fences. In the neighborhood of Hamilton, several farmers have derived benefit from this means, both for their crops and fruits.

This question, however, is not unlikely shortly to assume larger proportions. The stripping of the country of its forests; the long bleak tracts, inviting the violence and injurious influence of winds, will speedily demand a remedy. Arboriculture should be allied to the other efforts put forth by the F. G. A. of Ontario; not till then will the subject meet with that attention which it so justly deserves. That all efforts to accomplish this laudable result, may meet with an able advocate in our HORTICULTURIST, and that this paper may lend a helping hand in the good work, is the aim and object of your essayist.

SCRIBNER SPITZENBERG APPLE.

A correspondent of the *Gardeners' Monthly* residing at Plattsburg, N. Y., claims that he has in this variety an apple of the peculiar flavor of the Esopus Spitzenburg, while the tree is more hardy and vigorous, and an abundant bearer. In 1859 it was exhibited at the annual meeting of the New York State Agricultural Society, and received a silver medal. The fruit is very like the Esopus Spitzenburg in form, but somewhat more angular, and in color a lighter red. This may prove

to be a valuable fruit for general cultivation in Ontario, for Plattsburg lies in about the same latitude with Peterboro' and Barrie, and if hardy and productive at Plattsburg, it should do well in many of our colder sections.

APPLES IN MINNESOTA.

Seeing that the climate of the State of Minnesota is very severe upon fruit trees, our readers who live in the more trying sections of the Province will be interested to know what kinds of apples are found to answer there. At St. Paul, Minnesota, the mean temperature for the three Summer months is about the same as that of London, Ontario; while the mean temperature for the three Winter months is about that of Pembroke, in the County of Renfrew, or Three Rivers, in the Province of Quebec. Thus it will be seen that fruit trees in Minnesota are exposed to very severe cold in Winter, while the Summer heat is also quite considerable.

On looking at the transactions of the Minnesota State Horticultural Society for the last year, we notice that only two apples are recommended for general cultivation, namely, the Duchess of Oldenburg, and Wealthy. This indicates that the climate of that State must be very unfavorable to the apple tree. The Duchess of Oldenburg has been cultivated in this Province for a number of years, and has borne the severity of our Winters unharmed. The Wealthy is not as well known, indeed it is doubtful if it has been planted in many of our orchards. The Tetofsky is recommended for planting in limited quantities. The reason for this limitation does not seem to be brought out in the discussion, unless it be because one gentleman lost a number of trees of this variety in the Winter of 1873. The St. Lawrence, Utter's Red, and Snow apple or Fameuse were recommended for favorable localities; and the White Astracan and Elgin Beauty for general trial throughout the State. So far as the White Astracan has been cultivated here, it has been considered a fruit of poor quality, not to be grown where better sorts will thrive. The Wealthy is a very good, medium sized fruit, in use from December to February, which originated near St. Paul, in Minnesota, and seems to have maintained a character for extraordinary hardiness; it is worthy the attention of those who require a tree capable

of enduring a very low temperature. The Elgin Beauty originated in the township of Elgin, in Wabasha county, Minnesota; it is a medium sized fruit, streaked with red on a yellow ground, moderately juicy, sub-acid, in season from November to March. The writer is not aware that it has been planted in Ontario.

A WORD OF WARNING TO PEACH GROWERS OF ONTARIO.

BY A. M. SMITH, DRUMMONDVILLE, ONTARIO.

Perhaps it is not generally known, but it is nevertheless a fact, that the disease so destructive to peach orchards called the yellows, has made its appearance in our midst. Quite a number of orchards along the frontier, particularly in the vicinity of Drummondville and Stamford, have had affected trees in them the last season, and some in the great peach growing section of Grimsby. The symptoms of this disease are, 1st, an enfeebled vitality, the foliage looks sickly; and, 2nd, the fruit ripens prematurely, sometimes two or three weeks before its usual season for maturing, it is usually high coloured, red and flecked or spotted, and is red around the stone. This occurring in young trees newly planted, has led many to think they had some new variety which was very early; but the flavor is universally insipid and watery, and the fruit nearly worthless. Hundreds of bushels of them were sold in Western New York last season, their color recommended them, but no one would care to buy them a second time. This disease, according to Downing, showed itself about the year 1800, in the vicinity of Philadelphia, where many orchards showed decay and death without any apparent cause, and it has since spread into nearly all the peach growing sections of America. That the disease is contagious there is no doubt, and it is also hereditary. Seeds from diseased trees will produce diseased nursery stock, and buds taken from them will produce disease where inserted, and the pollen from the flowers of diseased trees is also believed to carry the disease to trees that are contiguous. In these ways the disease has been spread over the country. It is therefore of great importance to those planting trees to procure them from localities that are free from this disease, and from parties who would use the utmost care in getting seeds and buds not affected with it.

Is there a remedy for the disease? It is said that when the disease shows itself in an orchard it is difficult to eradicate it, unless the trees showing the first symptoms are taken out, root and branch. In Michigan they have a law compelling people to dig them out; and I understand that there is such importance attached to this matter that vigilance committees are appointed in some localities, who visit orchards, ordering out every tree that shows any symptoms of this disease. But notwithstanding all their vigilance many of their orchards have been destroyed by it. If such extreme measures are necessary there, I should think that self-interest at least would dictate to every peach grower of Ontario to be on the alert, and remove all symptons of it as soon as it appears. I know there are some people who laugh at the idea of the yellows being here, and attribute the sickly condition of their trees to the cold Winter of three or four years ago, and I do not doubt that the Winter referred to injured the trees in some sections, and by enfeebling them, made them much more susceptible to disease. But I saw this same disease on several trees in an orchard in Niagara Co., N. Y. the Fall before the severe Winter spoken of, (and I think some of it in Canada,) and now that orchard is totally destroyed, and several others in its immediate vicinity are badly affected with it.

Professor Beal, microscopist of the Michigan Agricultural College, has been making observations to learn if possible the cause of the disease. He has detected several forms of fungoid growth attached to the roots of the trees, and this matter has so adapted itself as to enter into the circulation of the sap of the tree. Professor Redgie, of the same college, thinks the disease may be traced to this cause, and that an enfeebled condition of the tree caused by excessive bearing while young, or other enfeebling causes, may greatly increase the liability of the attack. In the analysis of the ashes of healthy, and diseased peach trees, it has been found that diseased trees lack two important elements, potash and phosphoric acid. Now it is an established fact that these are of the first importance among inorganic elements of tree growth, and this deficiency suggests a remedy. ("An ounce of prevention is worth a pound of cure.") Keep your trees supplied with plenty of potash in the soil, give them good cultivation, thin out the fruit and not let them exhaust themselves by over-bearing, particularly when young, and they will be less liable to an attack of this disease; and be vigilant in taking out all diseased trees when first attacked, and you may save your peach orchards.

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CLAPP'S FAVORITE.

Some of the members of the Association who received a tree of this pear in the Spring of 1873, have had the satisfaction of seeing the fruit and testing its quality. Mr. A. Morse, of Smithville, County of Lincoln, in reporting upon the trees received from the Association, speaks of this fruit as being *poor*. His report, which is extremely laconic, does not explain in what respect he finds it poor, nor give any account of the soil in which the tree is planted, nor the exposure to sun and air in which it is growing. Our own experience with this variety does not, by any means, confirm the opinion given by Mr. Morse. We have found the tree to be a vigorous grower, forming a very handsome head, quite hardy, and no more subject to the pear-blight than its parent, the Flemish Beauty. The trees are growing in a gravelly loam, with a clayey bottom, and sheltered on the west by an apple orchard. The fruit is large, very uniform in size, and evenly distributed through the tree; the appearance, when ripe, is very handsome, the color being a pale lemon yellow, with splashes of crimson on the sunny side, and occasional patches of russet. The flesh is very fine grained, buttery, and juicy, with a very agreeable, sweet, vinous flavor. It ripens before the Bartlett, and like all summer pears, will not last long; indeed to be enjoyed at all, must be quickly consumed. It has the fault of its parent, namely that of decaying at the core, so that while the exterior is very beautiful and firm, giving the impression of soundness and perfection, the interior may be wholly decayed. It is quite possible, that to this peculiarity Mr. Morse may have more especial reference when he pronounces it poor.

It is possible, however, to remedy this fault to a very considerable extent, by gathering the fruit before it is fully ripe. The exact time when to gather it can only be ascertained by experiment. In the case of the writer's soil and exposure, it will not do to let the fruit

remain on the tree so long as to change color to any great degree; and after it has been gathered, it should be eaten before the skin has put on all its beauty in crimson and gold, else it will be found to be only the glow of internal decay. We trust that Mr. Morse will have the patience to experiment with this pear yet a little longer, and give the readers of the HORTICULTURIST the results of his further experience. The character given by Mr. Downing, who is acknowledged on all hands to be the best American authority on fruits, is that this is an extremely fine and valuable pear, ranking in quality as "very good," which means next to "best." The very hardy character of the tree makes it well worthy of trial in all the colder parts of the Province, where many of our very choice pear trees succumb to the rigor of the climate.

SOME NEW FOUND FRIENDS.

In the second number of the current volume of the *Canadian Entomologist* is a very interesting account of the discovery of some small creatures that feed on the eggs of the Tent Caterpillars. It is very gratifying indeed to the orchardist, to learn that he has help from any quarter in the work of destroying such pests as these. During the past summer, the Forest Tent Caterpillar swept over large tracts of country in the Counties of Perth and Middlesex, stripping the leaves from the trees in the orchards, as well as from those in the forest, and doing a vast amount of injury. The question was asked at the Summer meeting in Stratford, if this pest was likely to continue in such force in years to come; if so, the out-look for fruit in those parts was gloomy enough. It was bad enough to have to look after the common Tent Caterpillar, and keep that in subjection, but such an invasion of its congener, if likely to be continuous, was fearful to contemplate. The discovery, to which reference is now made, may help to answer the question, and to illustrate the wonderful measures adopted to keep in check all undue multiplication of our insect enemies, and so to preserve the balance of power.

The distinguished editor of the *Entomologist* was devoting an evening to the microscopic examination of some cluster of eggs of both the American and the Forest Tent Caterpillar, when he noticed that

in many instances the gummy covering of the clusters was imperfect; that, here and there, a piece had disappeared, leaving the eggs bare, and in some cases the exposed eggs were empty. This circumstance induced him to cut into the affected clusters, which were found to be colonized by mites. They had evidently eaten into the eggs and devoured the young larvæ, and also consumed the missing patches of the glutinous covering. In some of the eggs the larvæ were found uninjured, while out of others would proceed several active little mites. Sometimes these mites were so small that five or more were found in a single egg-shell, with plenty of room and to spare. These, which he noticed were very active and nearly transparent, were doubtless young mites, not fully grown. The full grown mites were much larger, one of them nearly filling the egg-shell; these were of a pale-red color, with bright red eyes, and sluggish in their movements. On the outside of some of these egg-clusters, he found tiny pale-red eggs, which proved to be the eggs of these mites. On nearly every cluster that he examined, he found more or less of these mites. It is to be hoped that they are generally distributed over those parts of the country that have been infested by these Tent Caterpillars, if they are, they will help vastly in checking their undue multiplication.

As some of our readers may feel desirous of examining the egg-clusters of these Tent Caterpillars for themselves, we give an engraving, shewing the cluster as it will now be found, fastened around the twigs of the apple trees. They will be more easily seen in a cloudy day, and will be found near the ends of the shoots, not often more than a foot from the tip, and frequently but an inch or two. The gummy covering will prevent the individual eggs from being seen quite as distinctly as they are shewn in the engraving, it having been removed to shew the regularity of their position. This engraving represents the moth and egg-cluster of the Forest Tent Caterpillar. Fig. *a* shews a twig with the bracelet of eggs upon it, and *b* represents the moth with the wings expanded.

THE AMERICAN ARBOR-VITÆ FOR SHELTER-BELTS.

BY H. IVES, BATAVIA, N. Y.

In the report of the Fruit Growers' Association, the planting of timber belts as screens and wind-breaks for the protection of orchards was very properly mentioned as an important condition of success in fruit growing. In addition to the trees mentioned for this purpose, I would name the American arbor-vitæ for a low, dense growing and very effectual wind-break. It is very hardy, and can be obtained in almost any locality, it being found in all the Northern portion of the continent as far South as Pennsylvania. I approve of President Burnet's advice to plant the trees intended to form the timber belt in triple rows, but in the row of maple, or other deciduous trees, would plant an arbor-vitæ between every two deciduous trees, so as to fill the space between the trunks of the trees from the ground to where the branches commence. In this way a dense, low growth will be secured which will preserve a complete wind-break near the ground, when the other trees have lost their lower limbs and the larches have been taken for timber.

SOME FRUITS OF RECENT INTRODUCTION.

The second part of the Transactions of the Massachusett's Horticultural Society has been received, through the politeness of Robert Manning, Esq., Secretary, from which we glean some very interesting information concerning several of the fruits that have recently been brought to the attention of cultivators. It is hardly necessary to state that the officers of that Society are gentlemen who are well informed on the subject of fruits of all kinds, and that the opinions expressed by them with regard to their excellencies or faults are entitled to the highest consideration.

At the strawberry show, which was held in the city of Boston, on the 27th of June, 1877, the first prize for the best four quarts of any variety was awarded to the Belle; the same variety took also the second prize, and likewise the first prize for the best fifty berries. This is one of the seedling strawberries raised by Mr. John B. Moore, who seems to have been more than usually successful in this field of

experiment; inasmuch as three of his seedling strawberries are mentioned in these transactions, the General Sherman, Hervey Davis, and Belle. The Belle is stated to be the largest of his seedlings, indeed the largest strawberry ever exhibited before the society, and the quality good. The General Sherman is spoken of as an early fruit, very large and handsome, and of "good" quality. The Hervey Davis is considered by Mr. Moore to be the most valuable seedling he has raised, it being very hardy, prolific, and early; fruit very large, quality very good to "best." The fruit committee considered either of these seedlings to be in all respects superior to the Monarch of the West, or the Great American.

In our experience with new varieties of the strawberry, we have very often found that change of soil and climate make a great change also in the size and quality of the fruit, and the productiveness of the plant. There is not another variety in cultivation that has so universally accommodated itself to all soils and all climates as the Wilson. Many varieties have risen into a short-lived notoriety, a few yet remain that are generally cultivated in order to give variety and extent to the strawberry season, but we are fully persuaded that there are yet thousands of quarts of the Wilson grown and consumed, to every hundred quarts of any other sort. Time will tell whether these seedlings of Mr. Moore's raising, or any of them, will be able to rank in general usefulness equal to or above those we now have; meanwhile we hope that some of the members our Association will procure them, and give their opinion of the value they are likely to possess for us.

In peaches, we notice that the Foster has become exceedingly popular about Boston, for not only did it receive the prize for the best single dish, but that more of this variety was exhibited than of any other. It is a large, yellow fleshed peach, much resembling the Early Crawford, rich and juicy.

The variety of pear which attracted the most attention was the Souvenir du Congres; the specimens exhibited averaged a little over a pound each in weight, and the largest one measured seven inches in length. The fruit committee state that this new pear ranks in quality as "very good." It originated with M. Morel, of Lyon-Vaise, France. The writer has found the tree to be a vigorous, healthy grower, but it has not yet fruited. He has however seen the fruit on exhibition, and noticed that it was of large size, having much resemblance in form to

the Bartlett, and ripening appearantly about the same time, or possibly a little earlier. The color was a very handsome yellow, washed with carmine on the sunny side.

The great sensation in grapes was a seedling raised by Mr. John B. Moore. On the first of September it received the first prize for the best early grape. The committee state that on the fourth of September they visited Mr. Moore's farm and found several hundred vines of this grape, which is called Moore's Early, growing in near proximity to the Concord and Hartford Prolific, and that the Moore's Early was fully ripe, and bearing an abundant crop on all of the vines, while both of the other varieties were yet unripe, and seemed to require two or three weeks yet to bring them to maturity. The soil of the vineyard was a light sandy loam. This grape was first exhibited in 1872, and for the last four years has received each year the first prize for the best early grape. The committee recommended that the prize of sixty dollars be awarded to it for the best seedling grape.

A very good early grape is yet in demand. Most of our earliest grapes are deficient in some respect; the Eumelan is wanting in flavor; Hartford Prolific drops from the bunch; Creveling does not set its fruit well; Massasoit has small bunches, &c. We shall be most happy to receive from any member the result of his trial of Moore's Early, and to give it a place in these pages for the benefit of all.

DISEASES OF APPLE TREES.

Inquiry is made by Thomas E. Turnbull, Hall's Corners, Ontario Co., N. Y., as to the cause of the disease in the young apple trees known as "black fungi," its description and remedy. It is a matter for congratulation indeed, if there be a disease to which any of our fruit trees are liable, and they have so entirely escaped it as to leave us in ignorance of its existence. The editor is very happy in being able to say that he does not know what that disease is. Young apple trees sometimes become what is termed black hearted, from improper fall pruning, and the equally improper attempt to grow them in undrained soil. If this be the subject of our correspondent's enquiry, we have given him the cause and cure.

He also asks "the cause of trees casting the bark to the height of

eight or ten inches from the ground; under the bark the wood looks dead, and the bark scales off in time. No sign of borers. Two trees stand in a garden and are well cultivated, another outside of the garden in sod. The trees are of the Spitzenburg variety, and twenty years old." "Also on other trees of the same variety the bark dies in streaks on the body and limbs. Is it caused by borers?"

The reason why the bark scales off, is because the wood beneath *is dead*, but why the wood has died is a question not easily answered by one who is ignorant of all the peculiar conditions in which these trees are placed, save the information given in this inquiry. Also it is impossible, for the same reason, to say what is the cause of the death of the bark in streaks on the bodies and limbs of the other trees. Our correspondent should be able to ascertain by examination whether it is probably caused by borers.

THE CHINESE PRIMROSE.

In a previous number mention was made of this pretty flower, and of the satisfaction it gave to every one who had tried to grow it. We are now able, through the kindness of Mr. James Vick, of Rochester, N. Y., to present our readers with a neat illustration which will enable those not already acquainted with it, to form a very accurate conception of the appearance of the plant and flower.

It is one of those free, bright, cheery looking things, with something of a saucy air about it, that is ever reminding you of wildwood haunts and shady banks, where the fresh breezes toss the leaves, and toy with the flowers; and while you are enjoying their freshness and beauty, there steals into your mind the long forgotten melody of those witching words:

"I know a bank where the wild thime blows,
"Where ox-lips, and the nodding violet grows."

Such is their naturalness and air of vivacity that one never tires of them. You enjoy them to-day, and to-morrow they greet you with

such a look of welcome, and hold up their pretty faces to you with such a winning grace that you linger longer than yesterday. You cannot tell which to admire the most, the modest bashfulness of that double white which peeps out to you from under the leaves, or the challenging boldness of that single pink, whose laughing eye meets your gaze so roguishly. Double or single, white, pink, magenta or carnation, they have each their beauty, both of flower and leaf.

You can either purchase the plants at the florists, already in bloom; or, if you enjoy the pleasure of raising them yourself, you can procure the seed from your seedsman. If you undertake to grow them from seed, it will be necessary to provide some light fibrous loam, well mixed with fine sand. Fill a small flower pot nearly half full of potsherds broken quite small, place over these a thin layer of moss to keep the soil from choking the drainage, and finish with your mixture of loam and sand. Now immerse your pot to the rim in water, until the moisture appears at the surface, then let the surplus water drain out, and sow the seed thinly over the surface of the soil. Now sift a very little of the very finest sand over the seeds, or what is better for the beginner, gently press the seed into the soil with some very smooth surface, such as a piece of glass, cover the pot with a light of glass, and set it in the north window of a warm room. In a couple of weeks the young plants will appear, and should be exposed to the light as much as possible, but not to the direct rays of the sun. When they need watering, it is safer to give it by immersing the pot in tepid water, until the soil is sufficiently moistened, than to apply it with a watering pot, unless you have one with a very fine rose. When the plants have become large enough to handle, transplant them separately into thumb-pots, well drained at the bottom, and filled with the same sort of soil that you used before, place them in a window where the sun will not strike them, give them plenty of air, and do not allow the temperature of the room to rise above sixty-five degrees. As fast as the roots fill the pots, shift into other pots a little larger in size, and do not check their growth by neglect. During the summer plunge them into a frame on the north side of some building, and when the nights begin to get chilly in the early part of September, return them to the window where you wish them to bloom. As soon as the flower buds form, be careful not to wet them when watering, lest they should rot.

If your seed was sown early, say in February, and your plants have grown well, they will begin to bloom before Christmas, and continue to yield a succession of flowers until June. When they have done blooming give them a rest of about six weeks, then pot them off into larger pots with fresh soil, and keep them growing, shifting to larger sizes as fast as they fill the pots with roots, if you wish to produce large, showy plants. If you do not wish to have large plants you can cut off the shoots and use them as cuttings, if you prefer this course, for any reason, to raising a fresh lot from seed.

JARED P. KIRKLAND, L. L. D.

This distinguished man of science died at his home, near Cleveland, Ohio, on the 11th of December, 1877, at the advanced age of eighty-four years. To those who are now passing the meridian of life, he was well known as a most earnest student of nature, working diligently in several fields, with the fidelity and pains-taking of an enthusiastic admirer. His labors in the cultivation of fruits, and especially his experiments in the hybridization of cherries, have made his name familiar to every fruit grower. It is to him that we are indebted for that beautiful early cherry, the Governor Wood, which has been extensively disseminated throughout the sweet-cherry region of Ontario. Over twenty varieties of sweet-cherries, originated by him, are now in cultivation, conspicuous among which, besides the one already named, are his Black Hawk, Kirkland's Mary, and Rockport Bigarreau.

Dr. Kirkland was born at Wallingford, in the State of Connecticut, on the 10th of November, 1793. His love of nature manifested itself in his early boyhood; the habits of all living things that had their haunts near his childhood's home were familiar to him, and at the early age of twelve years he was trying experiments in the raising of silk-worms. His grandfather bequeathed to him his medical library, and sufficient means to enable him to obtain a medical education. He entered the medical department of Yale College at its opening, and was the first student on its matriculation roll. After pursuing the practice of his profession for several years in his native State, he accepted the chair of theory and practice of medicine in the Ohio Medical College,

at Cincinatti, which he filled for five years with great ability and acceptance. In 1837 he purchased a farm, situate five miles west of Cleveland, where he made his home for the rest of his life. Here he pursued his favourite experiments in fruit culture and hybridization, and here he raised those hybrid cherries that have added so much to the pleasure and comfort of many a lover of fruit. During the period of his residence here he superintended the natural history department of the first geological survey of Ohio, and prepared a series of reports, which have been esteemed most valuable contributions to natural history. His large collection of specimens he donated to the Cleveland Society of Natural Sciences, where they are now jealously treasured. His was a busy life, down to its very close; for his temperate habits and genial spirits had preserved his vigor even to old age. May his mantle fall upon some of our young men who shall, with like tireless energy, take up the work of scientific fruit culture, and carry it on to yet fuller and richer results.

BEETS FOR TABLE USE.

The Turnip-rooted Beets are usually grown for summer use, because they mature early. For many years the variety known as the Early Blood Turnip-Beet has been held in high estimation, both on account of its rich color, and good flavor. Then came the Early Bassano, not so dark in color, yet presenting a beautiful alternation of white and rose when cut into slices, and maturing a little earlier than the Blood Turnip-Beet. Within a few years a variety known as the Egyptian Blood Turnip-Beet has been gaining a place in our gardens. It is rich in color, tender and sweet, and comes to maturity the earliest of them all. On this account it is a favorite with market-gardeners, who often find it to their advantage to be able to supply their customers early in the season.

Beets delight in a rich and mellow soil. In cold and damp soils they are apt to be coarse and of poor flavor. The seed may be sown as early in the season as the ground can be worked. It should be planted in drills, eighteen inches apart, and two inches apart in the drill, and at a depth of an inch and a half. The seed will germinate

more certainly and quickly if it be first soaked for a few hours in warm water, just before planting. When the young plants have grown to a height of about three inches they will require to be thinned out so as to stand from four to five inches apart. The young Beets that are pulled up in thinning out make most excellent greens, cooked tops and all. By taking out only a part at a time, the table can be supplied with these greens for some days.

In growing beets for table use it is not wise to endeavor to have them as large as it is possible to grow them. Overgrown beets are usually coarse, and lacking in flavor. A good beet is close and compact, fine grained, free from fibre, and smooth. For winter use the writer is in the habit of making a second sowing of the Early Blood Turnip-Beet about the end of June; these will keep sweet and good until June, if stored in a cold cellar—if kept in a warm cellar they lose their freshness and flavor.

SHALL WE GRAFT OVER OLD ORCHARDS.

BY H. IVES, BATAVIA, N. Y.

After considerable experience in grafting old orchards on different farms, I have come to the decided conviction that it is better to plant out young, grafted trees of the sorts desired, than to graft over an orchard of old trees. I wished to change an orchard of Northern Spy, which had just begun to bear, into Baldwins; and thinking that the grafting of these thrifty young trees could be done to as good advantage as it ever could in any case, I put in from four to six grafts into each tree, which cost me about the same as new trees. Now I am not at all pleased with my work. The symmetry and beauty of the tree-top is destroyed, and after the best has been done that can be done to develop well-balanced tops from these grafts, they will have the appearance of having been bungled. In the case of old trees it is worse yet; it is more expensive, because more grafts must be set, more trimming done, and the work performed at great disadvantage. It is not, in my opinion, profitable to make such an orchard as satisfactory in appearance or as profitable in the end, as an orchard newly planted with young trees. The old trees will pay for the new trees if dug up

by the roots in early Spring and cut up into stove-wood. I had a large orchard of old apple trees which I had dug up for twelve and a half cents each, and produced nearly an average of a cord of wood to a tree. The wood was worth enough, and more than enough, to pay for my new orchard of young trees, and when grown they will be far better than I could possibly have made the old trees by grafting them over.

ONE OF OUR COMMON INSECTS.

BY W. SAUNDERS, LONDON, ONT.

(Continued from page 11, No. 1.)

When the little caterpillar of the Cecropia Moth has eaten its way out of the egg, and makes its first meal on the empty egg-shell, it presents itself to us as a little, slim, black creature, with shining black knobs on its body, from which arise hairs of the same color. Being blessed with an excellent appetite, its growth is very rapid, and soon its skin becomes uncomfortably tight, when it is ruptured, and after much labor the little thing wriggles itself out of it; which process is repeated several times before the caterpillar attains its full growth. After each of these changes, or moultings, as they are called, the larvæ appears in an altered as well as an enlarged garment, and finally, when full grown, it attains the size and assumes the appearance presented in

FIG. 3.

Fig. 3, and a very handsome creature it is. Its body is of a pale green color, and is ornamented with large warts or tubercles; these are coral red on the third and fourth rings of the body, while all the others are yellow, excepting those on the second and terminal segments, and the smaller tubercles along the sides, which are blue.

During its rapid and enormous growth it consumes an immense amount of vegetable food, and especially as it approaches maturity is its voracious appetite apparent. Where one or two have been placed on a young apple tree, they will often strip it entirely bare before they have done with it, and greatly damage the tree, and sometimes endanger its life by preventing the proper ripening of the wood.

The natural ratio of increase of this insect being very great, nature has provided means to curtail it. Being a somewhat conspicuous object, the larvæ sometimes serve as a dainty meal for some of the larger insectivorous birds, but is much oftener attacked and destroyed by parasites of several distinct species, all of which, in the larvæ state, live within the body of the caterpillar, and rioting on its substance finally occasion its death. One of these is shown in Fig. 4, a fat, legless grub or maggot, which is the progeny of a handsome four-winged fly, of a yellowish brown color, known as the "long-tailed ophion fly, *(Ophion Macrurum,)* Fig. 5. The female fly deposits her eggs on the skin of her victim, fastening them firmly there; these, when hatched, eat their way through the exterior, and at once begin to feed upon the fatty parts within.

Fig. 4.

Fig. 5.

A two winged fly, known as a Tachina fly, very similar if not identical with the species known as "the red-tailed Tachina fly, *Exorista Militaris*, figure 6, is often found infesting

FIG. 6.

the Cecropia Caterpillar. The larvæ of this fly are of a translucent yellow color, and when mature, eat their way out of their victim and change to the chrysalis state under the ground. There are also two smaller species of parasites, known as Chalcis flies, which are destructive to this insect; one of these, *(Chalcis Maria,)* is shown in Fig. 7, much enlarged, the cross lines at the side showing the natural size.

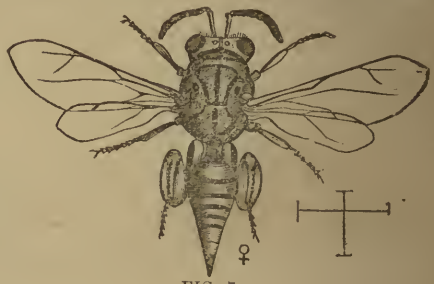

FIG. 7.

MILDEW ON THE BLACK CURRANT.

BY REV. W. STEWART DARLING, TORONTO.

I should be glad if in the next number of the HORTICULTURIST the editor would say whether he has seen or heard of a sort of blight or mildew which here has fallen on the black currants, and which, if it spreads, will put an end to the culture of that fruit. I have some beautiful black Naples bushes from which I have never had any perfect fruit; although a man who knows something about it said the other day, I ought to have half a bushel of currants from each tree. Soon after the foliage is fully developed, I observe here and there that the leaves begin to assume an upright tendency around the edges; underneath I find an almost invisible film, which however is so slight that I can assure myself of its presence only by passing my fingers over the under side of the leaves, after which there is a perceptible "stickiness," which contact with healthy leaves does not produce. This continues to increase till the film becomes white, and passes over on to the upper side of the leaf in the form of mildew. This subsequently becomes brown, and the leaf, or part of it, will crumble as if scorched with fire. The power of the leaf is evidently destroyed before this stage; the fruit is arrested in its growth, and even that which is tolerably matured is dry

and almost useless. I can detect no trace of insect life, nor could a well-known entomologist, who looked at them last summer, suggest the cause. I treated them with whale-oil soap in strong solution, and though I fancied that it retarded the growth of the evil it had no ultimately good effect. I have cut them back rather closely and propose to try salt on one row and sulphur on another. The land is light and warm, but well enriched; but land equally poor, not far off, had good fruit on it, while mine yielded nothing.

Not only in my own interest, but in that of others, I should be glad if some of our skilled fruit growers could give their attention to this matter.

[NOTE.—Not having noticed this mildew, the editor requests any members who have been troubled with it to give their method of treatment.]

ASPARAGUS.

There is an increasing inquiry for plants of this most excellent vegetable, which indicates that it is becoming better appreciated, and that our people are increasing the variety of vegetables upon their tables. For a long time the only variety of vegetable enjoyed by the great proportion of our people was the potato. Very little attention was paid to the garden by our farmers, many of them had none at all; the only green peas were the poor, wretched things which were taken from the field—plundered from the swine, to which they properly belonged; and perhaps a few ears of green corn, in their season, from the corn-field. Rich, marrowfat peas, and sweet corn, were things almost unknown. It is very pleasant indeed, to notice a growing inquiry for better vegetables, and more of them.

One of the earliest that we have, much like rich green peas, coming with the sunny days of early spring, glad harbinger of other delights, is the Asparagus. As soon as the snows are gone, and the soil becomes warmed by the sun, the buds of the Asparagus begin to shew themselves above ground, and as soon as they have attained a few inches in height, may be broken off at the surface and cooked for the table. Many use them as they would green peas, cutting the sprouts into small pieces, cooking and serving them in the same manner. Others

boil them whole until they become soft, spread them upon some toasted bread, and pour melted butter over the whole. Others again treat them as greens, dressing them with vinegar.

This little cut, which was obtained from Mr. Vick, of Rochester, shews the root with the buds growing up from it, and will give to many who are not familiar with the plant a good idea of its appearance. These roots can be purchased of nurserymen and market gardeners at very moderate cost, and planted out in a bed in the garden where they will continue for many years. The bed should be prepared by deep spading, and be well enriched and thoroughly pulverized. Trenches may be cut across the bed about six inches deep, and eighteen inches apart, and the plants set in the trenches nine inches from each other, and covered with two or three inches of soil. The best time for setting them out is in the Spring, from, say the middle of April to the middle of May.

Salt is a special manure which may be applied to our Asparagus beds with great benefit in this inland region. It should be spread over the surface of the ground only in the Spring, before the buds appear, at the rate of three pounds of salt to the square yard. Asparagus is a marine plant, hence an application of salt in sufficient quantity to destroy weeds, only supplies that, which in our inland country, is needed for the health and vigor of the plant.

A word about cutting the buds for use. In most of our works on gardening we are directed to cut them two or three inches below the surface, exercising great care not to cut off, in the operation, the buds which are coming up, but yet unseen. But why we should be at so much pains, and run so much risk of injuring the buds that lie hid under ground, merely for the sake of securing a portion of the stalk, which though it looks white and tender, is really tough and useless, is not easily understood. We prefer to cut them off just at the surface, thereby securing all that is eatable, and avoiding all risk of injuring the buds below. A young bed should not be cut over but a few times, after it has been well established the cutting may be continued for several weeks.

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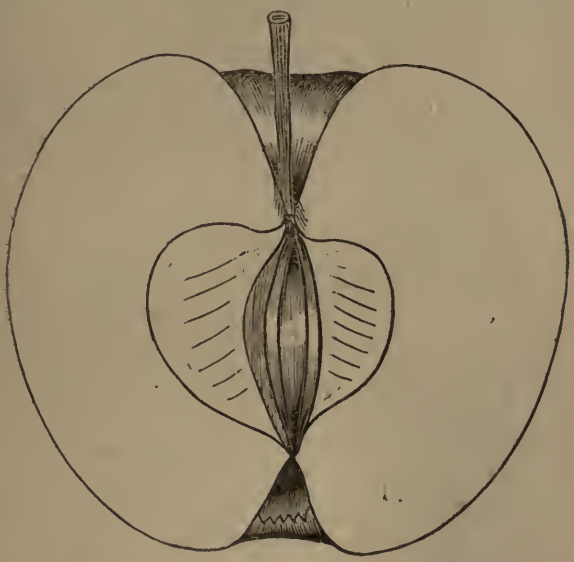
THE HASTINGS APPLE.

At the Winter meeting some specimens of this apple were exhibited by P. C. Dempsey, Albury, Ont. Such was the attractive appearance of the fruit, and so many its apparent good qualities, that we have obtained from Mr. Dempsey all that he was able to learn of its history, and procured an outline of the apple for the information of



the members. The outline was taken from a medium sized specimen, and gives a fair representation of the form of the fruit and average size. The apple originated in the eastern part of the County of Hastings. The tree is a very pretty, rapid and upright grower, the wood is dark brown, the leaves large, and of a dark green color. The fruit is borne on spurs upon the old wood, and the terminal points of the previous

season's growth. The tree produces a good crop every year. Mr. Dempsey states that his tree has been fruiting for five years, and the crop has proportionately increased every year. The apple varies from medium to large; somewhat conical in form; the color is bright red, splashed and mottled with dark red. The stem is long, slender, set in a deep, narrow, funnel-shaped cavity; calix closed, and set in a shallow, strongly ribbed basin, flesh a little coarse grained, white, tender, breaking and juicy, flavor very mild sub-acid, pleasant, and slightly aromatic. The fruit sells readily, commanding the highest rates. We think it is worthy of the attention of those who find it necessary to plant the hardier varieties on account of the severity of their climate.

THE SEASON FOR TRANSPLANTING EVERGREENS.

BY S. B. SMALE, WROXETER.

When should Evergreens be transplanted, is a question which has been very often asked and as frequently answered. There is not a month in the year which has not been, from time to time, advocated as the proper season in which to perform this important work. But I believe the majority of those who have either written or spoken on this subject have stated the preferable time to be, in their judgment, from the middle of May to the middle or end of June in each year. I have known many to go so far as to say that this is the only time that it can be done with anything like safety. To this rule I wish to take exception, because the period named is that of the plant's greatest activity; consequently, a greater shock will be given to it by its removal at this particular period than at any other. It is now admitted by all who have given attention to the subject, and it is in accordance with both theory and practice, that the best time to transplant deciduous trees is when they are dormant, that is, not growing; some time between the falling of the leaf in Autumn and the bursting of the bud in Spring. In this severe climate it is usually done in the Spring of the year, as soon as the ground has become sufficiently dry and settled to work easily. There is nothing in the nature of Evergreens to prevent this rule from applying with equal, or even greater force to them. They, in

common with other trees, have their period of growth and their period of torpidity in each year, although no living tree can be said to be in a state of absolute torpidity at any time; they exhale moisture to some extent from their buds and small branches, and Evergreens from their leaflets also, even in the depth of Winter. In order to supply this waste they must absorb by the roots, so that a circulation, however sluggish, is maintained even at this period of the year. To transplant in the Fall or Winter would be to cut off a great many of the roots that run to the greatest depth into the soil out of the reach of frost, so that the tree would be prevented from obtaining the moisture requisite to maintain life. Therefore I would not recommend Fall or Winter as the season most suitable for transplanting Evergreens. The comparative leisure of the season might induce planters to perform the work in the Fall in milder climates than ours. I have found the first Winter to be a trying time in some years for Evergreens that were transplanted the previous Spring. In May and June the plant is putting forth its utmost efforts to produce the annual growth of wood; absorption, exhalation, and circulation are in their states of greatest activity, and the plant receives a rude shock when these are suddenly interrupted. By transplanting in the early Spring the earth will have time to settle about the roots; young fibrous roots will have commenced to grow, and the plant will not attempt to produce the same amount of annual growth that it would if not removed until June. The sap of Evergreens is resinous, and if the plant be long exposed out of the ground the watery portion of the sap evaporates, allowing the resin to harden, and no amount of water afterwards applied to the roots will soften it, as it is insoluble in water at ordinary temperature, the circulation consequently can never be restored, and the plant of necessity must die. Now this state of affairs is more likely to be brought about in Summer than in the Spring, when we have cooler weather and a greater number of cloudy days. I would recommend early Spring as the best time to transplant Evergreens. It is not contended that Evergreens cannot be transplanted with success at other seasons, but all other things considered, I believe the transplanting of them in early Spring reduces the chances of failure to a minimum. If they are taken up with a large ball of earth adhering to the roots, large trees even may be safely transplanted at any season; this however is too slow and expensive a process

for large plantations. I have planted some hundreds of Evergreens, and my experience agrees with what I have stated above, as to time. The planting of shelter belts by the orchardist is now thought to be necessary before he can be said to have completed his arrangements for the successful growth of fruit, and the planting of two or three rows of Evergreens will have more effect in protecting an orchard from the cold winter winds than many rows of deciduous trees, which have nothing but their naked stems and branches to offer as a resistance; hence the importance of the subject that I have thus briefly discussed. Tree planting is one of unsurpassed importance to the fruit grower of the present day; and the free discussion of such questions in a periodical such as the CANADIAN HORTICULTURIST, must be mutually instructive and beneficial.

I wish to say, before closing, that I was much surprised and highly gratified on receiving, one day this week, the first number of the CANADIAN HORTICULTURIST. It will supply a long felt want, it being the first publication of the kind in Canada, so far as I know. The one mysterious thing to me is, how the Fruit Growers' Association of Ontario can supply so much, for the member's annual fee of one dollar. The Directors are entitled to the lasting gratitude of the members; and I trust their laudable efforts to promote the interests of fruit growing in Ontario may be crowned with unbounded success.

THE CABBAGE BUTTERFLY.

A member of the Association writing from Garafraxa, wishes us "to give some information as to the best way of getting rid of the green cabbage worm; it is a great pest in this quarter." We have much pleasure in referring him to the entomological part of the Report for 1877, at page 7, where it is stated by P. C. Dempsey, of Albury, that hot water had been successfully used to destroy the worms; that the cabbage would bear an application of water heated to 200° of Farenheit without injury, while even at a somewhat lower temperature it would kill the worms. The hot water can be applied through the rose of a common garden watering-pot. He also stated that a cold infusion of Quassia, in the proportion of three pounds to a barrel of water, had been

found to be effectual in killing the worms, and more conveniently applied than hot water. The Quassia might give a slightly bitter taste to the cabbage unless thoroughly washed before cooking, but it is perfectly harmless to the human system.

At page 5 of the same Report, he will find that the President of the Entomological Society gives him the cheering information that the little parasite, *Pteromalus puparum*, is on the increase here, hence there is a good time coming, when the ravages of this pest to our cabbages will be very much lessened. And this hope was previously held out to us at page 40, of the entomological part of the Report for 1876. Some methods of lessening the numbers of this butterfly are suggested at page 32 of the entomological part of the Report for 1875, and a full description of the insect, with engravings of male and female butterfly, of the worm and of the chrysalis, are also given.

A PLEA FOR FLOWERS.

BY AN OLD DIGGER, HAMILTON, ONT.

Among other useful magazines of the month, I wish to greet in terms of welcome that particular one which the Directors of the Fruit Growers' Association of Ontario have put forth, not unlike what Noah did when he loosed the dove from the ark, to secure for the lovers of fruits and flowers so desirable a medium for exchanging horticultural thoughts and experiences. May the CANADIAN HORTICULTURIST prove a welcome visitor each month to those who seek the festive regions of Pomona and Flora. I take its humble beginning as a pledge of future greatness, and am convinced that the members of the F. G. A. will make it a credit to our Province by frequent contributions of useful matter.

Farmers' wives and daughters, among whom, I am happy to say, is growing up a most worthy and refined taste for flowers and fruits, will find it to their advantage to ask questions through this convenient medium, as to the finest, best, and most suitable flowers with which to deck their lawns and ornament the garden-plot attached to their rural homes. What can add more to the charms of these quiet homes than nicely kept borders of blooming flowers, unless indeed it be the ruddy

glow of health on the cheeks of the maidens who tend and care for these lovely pets of Summer. They are the true Canadian daughters who thus labor to make home attractive, and secure the love of father, the approval of mother, the affection of brother, and finally gain for themselves, as a just reward, the deep and lasting love of the appreciative man, who has been watching and waiting to take as his wife to his own home, the girl who knows so well how to strew life's thorny path with beautiful flowers. He knows, without further instruction, that she will make that home an Eden.

Many a time, weary with the day's hard digging, have the pains of my own toils vanished when looking over and admiring the well-kept borders of petunia, phlox, pansy, heliotrope, and asters, placed in front of my humble cottage by the loving hands of those who know so well the attractive force of flowers; there have I sat, in the quiet glow of golden sunset, enjoying to the full their brilliant tints and grateful fragrance; the hard lines of life's toil for the time quite forgotten, in delightful communion with these smiling daughters of Flora. Let us then cultivate flowers, and have all the talk we can touching these pledges of love from the full hand of nature.

CYCLAMEN PERSICUM.

We wish to call attention to this beautiful and easily grown flower, both on account of the ease with which it can be cultivated, especially as a window plant in a cool room, and the abundance of flowers which it will yield in the months of January and February, when flowers are greatly appreciated. Probably many of our readers are not familiar with it, and therefore in order that they may have a better idea of its general appearance than can be given by any description, we have obtained, through the courtesy of Mr. Jas. Vick, of Rochester, N. Y., the ac-

companying engraving, which is a very accurate representation of the plant in flower.

The Cyclamen can be propagated successfully only from seed, but as that is a somewhat tedious process, requiring two, and sometimes three years to produce corms of sufficient size to flower, the process of raising them will not now be dwelt upon. The corms, already grown to sufficient size for flowering, can be purchased of the nurserymen and florists for fifty cents apiece, and when once procured, with proper treatment, will last many years. They are called corms because they are solid and not formed, as bulbs are, of imbricated scales.

Most persons will purchase their Cyclamens when in flower, and therefore we commence our hints on their culture at this point. When you have brought them home, place them in the window, as close to the glass as possible, where they will have abundance of light; they do not require much heat, even when in flower; indeed they flourish better and hold their flowers longer where the temperature is not raised higher than sixty-five°. They should be watered with care, not allowing the soil to become dry, nor, on the other hand, to be kept soaked with water. When they have finished flowering, they should be slowly ripened off, withholding water gradually, and exposing them fully to the sun and air. After they are thoroughly ripened, it is the writer's practice to plunge the pots into a bed on the north side of a building or tight board fence, where they will be sheltered from the full power of the sun. The pots are plunged deep enough to cover the corms with soil to the depth of a couple of inches. Here they can be safely left until September, unless mice find them, if they do they will surely devour them. About the first of September they should be taken up, knocked out of the pots, and repotted in fresh soil. Do not use large pots, one that will receive the corm nicely is large enough, the same pot often answering for two or more years. A soil composed of well-rotted turf, decayed leaves, and sand, in about equal parts, will be found well adapted to them. The addition of a little pounded charcoal, or soot from the chimney, is thought to add to the depth of color of both leaves and flowers. In potting, put plenty of broken crock or bits of charcoal in the bottom of the pot, so as to give it good drainage, then fill with soil and plant the corm so that the top of it will be level with the rim of the pot, and one third of it above the surface of the soil;

now water sufficiently to settle the soil, place them in a cool, shady place, where they can be protected from frosts, if frosty nights should come, and water very sparingly, only giving sufficient to keep the soil damp. When the weather becomes so cool that it is prudent to take them in, put them in the window where they can have plenty of air and light, but where the thermometer will not indicate a temperature above fifty degrees, and continue to water them sparingly. In watering do not pour the water over the corm, but on to the soil below. Some place the pots in saucers, and give water when needed by pouring it into the saucers. The great secret of success lies in keeping the plants in a cool temperature until they begin to bloom, and not allowing the soil to become overcharged with water. When they begin to bloom they may be allowed a temperature as high as sixty-five°, and will require to be watered more freely.

The leaves of Cyclamen Persicum are heart shaped, toothed on the edge, dark green in color with marblings of gray. The flowers are raised above the foliage on long foot stalks, as shown in the engraving, and are either white with a rosy purple centre, or rosy lilac throughout, with a deepened shade at the centre. They are very free bloomers, the individual blooms continue a long time, and the succession is kept up for months. Mr. Vick says of them, very truly, in his catalogue, "They are particularly adapted for window culture, and will give more flowers with less trouble than almost any plant with which we are acquainted."

CONOVER'S COLOSSAL ASPARAGUS.

We have not been able to see any marked superiority in the Conover's Colossal Asparagus over that in use long before Conover was born. Some of the best samples of this new sort were sent to the exhibition of the Massachusetts Horticultural Society a few years ago, but they were badly beaten by the common sort, which was both larger and heavier, though it laid no claim to being colossal. Cultivation will make colossal buds, neglect will make but pigmies, in this as in everything else.

APPLE TREES IN THE COUNTY OF DUNDAS.

BY JOHN CROIL, AULTSVILLE.

The following suggestions by one of the Directors of the Fruit Growers' Association, are taken from the *Morrisburg Courier*, and deserve careful attention from all fruit growers who have to contend with a climate similarly severe:

"To any one of common observation, I think it must be evident that the cultivation of the orchard has not been a success among us. Old orchards, with few exceptions, are comparatively worthless, and their place is not being well supplied. Appearances are that our farmers will soon have to procure from a distance, and at unnecessary expense, their supply of that most healthy and favorite of all fruits, the apple, which they should have in abundance, and at little cost, at home. The fault does not lie in that trees enough have not been planted; nurserymen and tree planters can vouch for that. The natural question comes to be, wherein lies the cause of failure? Many reasons are advanced, such as poor trees, our severe winters, &c. No doubt these have much to do with it, but much can be done to help us out of these difficulties. I suggest first, that we want hardy trees, and if I succeed in naming to your readers trees really hardy for this neighborhood, I think I will have gained one point. Any little knowledge I may have in the matter I have learned from observation, and rather dear bought experience. When I planted my first orchard, I thought I had so well posted myself up in the opinion of good authorities, that success was a certainty, but soon discovered my mistake. As to varieties, Downing names hundreds that will thrive well in his favored climate on the banks of the Hudson, that are of no value to us here. The same may be said of many of our large growers in the West, and other milder climates. Some trees succeed here that are worthless in the Ottawa valley. Many trees are classed in the catalogues as hardy that will not stand our Winters; of these I'll name a few I am convinced will never be profitable with me, nor do I think they will thrive in our neighborhood, viz: Rhode Island Greening, Wagner, Northern Spy, Baldwin, and Spitzenburg. I have tried them all repeatedly, and they will not answer; I wish they would, as they are all first class apples. True, they are all hardy kinds, but not hardy

enough for our locality. Under favorable circumstances some of them might live, but my advice is, leave them alone. Then most catalogues give us long lists of so called hardy apples, (too many to mention), that are worthless here; I'll pass them over, and name some of those I have tried, and have no hesitation in recommending. As to Summer apples I can say little, as, excepting a few for family use, I don't consider them profitable. Red and White Astracan, and Brockville Beauty are good kinds. Tetofsky and Early Harvest are well recommended. Autumn apples; Fameuse or Snow, St. Lawrence, and Duchess of Oldenburg, are quite reliable, and deserve all the praise they get. Seek-no-Further is a good apple, but I have found the tree short lived. Emperor Alexander is well spoken of. Winter apples; here my list will be small, but I think reliable: Talman's Sweet, Pomme Grise, American Golden Russet, and McIntosh Red. Of the latter variety it is said in the *Canada Farmer* for 1875, p. 125: "The parent tree originated where it now stands, in Matilda, Dundas Co. Ont., some seventy years ago, and has borne every year since the oldest inhabitants can remember, and is still perfectly hardy, the apple also being good in every respect. It has been propagated from, and distributed in the neighborhood, and evidence is given of the most positive character, as to the hardiness, productiveness, and longevity of the tree, and the quality, size and keeping properties of the apple." I have not had this variety long enough in my orchard to speak positively of its bearing qualities, but the few apples I have had, are equal to the description, and my trees are healthy and hardy. I planted in faith sixty trees last Spring, and ten some years ago. I would be inclined to try a few of the Baxter and Peach Apples, both Winter kinds, and well spoken of.

Many of your readers, when they come to the end of my list, will say (and they are right,) the number of Winter apples, the good long-keeping fellows we like to have in the Spring, are reduced to very few. I don't pretend to say the above are all the good Winter apples that will succeed here, but it is all I have found to succeed, and I will feel under obligation to any one in these counties who will name one or more other kinds faithfully tried and found good. Although my list is small, there is in it enough to have a good supply of apples nearly the year round, for home consumption and the market. When speaking

of the very limited number of varieties that will succeed here, an experienced nurserymen gave me the advice which I will pass to your readers: "Buy your Winter apples; grow and sell Fameuse to pay for them." I believe the advice on the whole to be good; would, however, recommend planting a few of the kinds above recommended. The Fameuse I consider decidedly the most desirable tree to plant, a hardy tree, an early and abundant bearer, and a universal favorite. Last Fall, from two trees of this variety, I gathered 17 barrels of apples, and sold them for $51. "Tall figures," perhaps some will say, but true.

Charles Downing, the great American Pomologist, says that the McIntosh Red is an apple of medium size or above, skin whitish yellow, very nearly covered with dark rich red or crimson, almost purplish in the sun; flesh white, fine, very tender, juicy, sub-acid, refreshing, with a pecular, slightly quince-like flavor. In use from November to February.

ON PHOSPHATES.

BY P. E. BUCKE, OTTAWA.

Some enquiries having been made at the Winter meeting of the Fruit Growers' Association, in February last, regarding phosphates, the following facts may not be without interest.

Deposits of the richest description of this ore are found on the River du Lievre, which flows into the Ottawa river, 18 miles below Ottawa city. Scientific analysis has proved beyond doubt that these beds of phosphates are decidedly the richest ever mined in any quarter of the globe, ranging, as they do, from 85 to 95 per cent. The rocks bearing this mineral are traced through five townships, and though the area is scarcely yet known to a certainty, owing to the country not having yet been cleared up, and the localities being covered with moss, leaves, trees, shrubs, and soil; it is not improbable that it extends over many miles of territory, besides penetrating to a considerable depth into the earth's crust. In many places the deposits are high up in the hills, the country about the section in which the phosphates are found being of a very uneven and broken nature. Already a number of enterprising individuals are engaged in getting out large quantities for shipment

this Spring, and though this industry has been greatly retarded by reason of the small quantity of snow that has fallen during the Winter, yet it is expected that some four thousand tons will be delivered on the banks of the Ottawa or on the navigable waters of the Lievre, ready for shipment in barges, either to New York city or to Montreal, where it will be reshipped to Britain, France, Germany, and Spain. The price realized per ton is about $15, which varies according to the assay, when deposited on the wharf. In Liverpool or New York it is worth, in its crude state, from $28 to $32 per ton; and when manufactured into superphosphate, by treatment with sulphuric acid, it brings $50 per ton on this continent. This manure is principally used, on this side of the Atlantic, in the southern States, where the climate is of a humid nature; further north, or in Canada, it is stated it cannot be used with success, as our atmosphere is not sufficiently moist, and it would therefore lay inactive in the soil; should this apprehension prove to be correct, it can never come largely into use here until some means of irrigation is devised to dissolve it, so that it may be absorbed by the tender rootlets of young and growing plants. This fertilizer is principally used in England for turnips, and is drilled in with the seed. When applied to this crop it produces the most wonderful effects, stimulating the young plants to a rapid growth, thereby overcoming the ravages of the fly so destructive in its early stages.

The great rival to the Canada phosphate beds are those of South Carolina, which were opened ten years ago. I find by the United States government returns, that in 1870 the sum of six millions of dollars was then invested by capitalists in working them, and the products from these mines have been shipped to Europe in large quantities. These phosphates are not nearly so pure as those on the Ottawa, yielding only 40 per cent., and as ours become better known in the old world, they will be the more sought after.

The Canadian phosphates supplied to the States are principally used there to mix with the poorer class received from South Carolina, which are manufactured into superphosphate at Brooklyn; the sulphuric acid used for treating the ores being that which has already done service in the coal oil refineries of Ohio and Pensylvania. The margin is so great betwen the phosphate and the superphosphate, the former being worth $15, and the latter $50 per ton, that the question of

manufacturing an article ready for use ought to be seriously taken into consideration by some of our capitalists. The refuse sulphuric acid could no doubt be very cheaply had from the London and Hamilton oil refineries, and it would only be a question whether it would be better to convey the acid to the phosphate or the phosphate to the acid, as the latter is not a very easy thing to handle. Should it be found necessary to manufacture the acid, it is understood there is any quantity of material for the purpose in the eastern townships, both as regards copper pyrites and sulphur beds; and if our deposits of phosphates turn out anything like what present indications would lead one to expect, at no distant day large manufactories, both of the acid and of the superphosphates will be established, most probably near Montreal, that being the most central point for operations.

THE POMME GRISE, AND THE SWAYZIE POMME GRISE.

BY REV. R. BURNET, LONDON, ONT.

The former of these apples has a number of synonyms. From the peculiar tawny color of the skin, the French are in the habit of calling it "Pomme de Cuir." English people, acquainted with its French name, call it "Gray Apple." This designation suits its appearance exceedingly well, for it is singularly marked, and once known can never be forgotten. Its excellence in Canada cannot be called in question; unquestionably it is the finest dessert apple we have. It is of French origin, and holds the same relation to apples, as the Seckel does to pears. Its exceedingly marked peary flavor has recommended its cultivation wherever known. Several Summer apples are exquisite in their flavor, and of great beauty, but for modesty of look, and real genuine goodness, commend us to the Pomme Grise. Some find fault with its size; it is easy to find fault, in fact that is the commonest accomplishment of mankind. It bears prolifically, and this may in part account for its diminutive size. Great size and fruitfulness seldom distinguish one variety of fruit. The tree is a strong grower, and requires no particular extra care. Its home, like that of the Fameuse or Snow Apple, is the isle of Montreal. It has taken kindly to its trans-atlantic location. Nor is this to be wondered at, Hamilton beach

is on the parallel of Cape Finisterre, on the north-west of Spain, and should St. Malo and neighborhood prove to be the country of its birth, it is not to be wondered at that it suits the climate of eastern Canada. It takes kindly to the soil of Ontario, and luxuriates in the western peninsula, succeeding more especially in the neighborhood of Niagara and Grimsby. We have never seen them excelled as grown on the Niagara river. The Messrs. Brown, perhaps, raise as good Pomme Grise as are grown anywhere. Mr. George Leslie, Jr., Toronto, has shown fine samples grown in his grounds, and the same may be said of samples from various parts of Yonge street.

We are led in the same connection to speak of the Swayzie Pomme Grise, so named, we have been told, from Col. Swayzie, an inhabitant of the Niagara District. Beadle's "*Canadian Gardener*" expresses the opinion that the apple originated on this farm. The original tree was blown down, the author says, during the Summer of 1870, and was standing in an irregular clump of apple trees, having the appearance of being the original seedling nursery, from which were raised the first apple trees planted out in orchard form on the farm. However this may be, we confidently affirm that this variety of apple is not as widely cultivated as it ought to be. To some tastes it is superior to its congener, the Pomme Grise. Certainly its flavor and delicacy go far to recommend it. It, too, might appropriately enough be called leather-skin, only it is of a lighter color than the Pomme Grise; sometimes with a blush on the cheek, and sometimes not, oftener with none. Both varieties are noble keepers, only fit for use about this season of the year. To those who have cultivated the varieties, and have plenty of them, it need not be said that they are as good for cooking as for dessert. Their dessert and cooking qualities are unexceptionable. The best mode, perhaps, to keep them is to store them in barrels, and only open when about to be used. Their long-keeping qualities commend them to dealers in fruit. We are not acquainted with any two other varieties more likely to give satisfaction to fruit growers than these. The F. G. A. of Ontario did well to disseminate the Swayzie Pomme Grise. It will find its way wherever tried, and prove a lasting comfort to the planter. We strongly advise fruit producers, especially the producers of apples, to largely plant winter varieties, as being profitable and satisfactory. Planting many varieties is like reading many books, apt to dissipate the energies.

For Winter use, few varieties can compare with the Pomme Grise, Swayzie Pomme Grise, Golden Russet of western New York, Grimes' Golden, Northern Spy, Esopus Spitzenburg, and Rhode Island Greening.

JOHN FREED.

(Late a Director of the Fruit Growers' Association.)

IN MEMORIAM, BY W. H. MILLS, HAMILTON.

The subject of this sketch was born in the parish of East Sutton, England, on the 13th day of January, 1813; and died in the city of Hamilton, March, 1878, at the age of sixty-five years. Previous to his emigration into Canada, which took place some time in the year 1843, he received his initial taste for fruits and flowers on his father's farm. Thus early and deeply imbued with a love for horticulture, at the age of thirty, Mr. John Freed left his native place and sailed for the United States of America. After remaining there but a few months he came to Canada, and took up his residence in the then town, but now city, of Hamilton, in the County of Wentworth, entering at once upon his loved occupation of gardening, and the production of trees for nursery stock, as affording him the best means of indulging his taste for the creation of new fruits and flowers. As soon as his limited means enabled him to put up a glass structure, the better to give him the requisite conditions and facilities to carry out his objects, he did so; and then commenced a system of cross fertilization, out of which has sprung some remarkable flowers, fruits and vegetables, among which we need only to name in the class Verbena, his "Wentworth," "Total Eclipse," "Sea Nymph," and "Excelsis;" in class Petunia, his "Behemoth," "Clipper," "Stipe," "Velvet Cushion," "Crimson Glow," and "Freed's Gem." In class Geranium, are his "Wax Work," "Gold Dust," and many others, among which his "Mrs. Freed" stands unrivalled, half double, of exquisite pink color, and immense truss. Among fruits, his New Canadian Orleans Plum, of fine quality, is worthy of special mention. He also originated that fine crisp Dwarf Celery, so popular in the Hamilton market, and to which he gave his

own name. He, in connection with Dr. Craigie, of horticultural fame, succeeded in establishing in this locality for a time a strong public taste for the cultivation of our native flowers, and under this effort brought out some rare specimens of great beauty. He was connected for years with the Hamilton Horticultural Society, and its success, in a great degree, may be traced to his horticultural skill and perseverance. As one of the Directors of the Fruit Growers' Association of Ontario, he was selected to take charge of our Canadian fruits at the great Centennial Exhibition held at Philadelphia, and performed that duty with great credit to our Province.

He was also an active member of the South Wentworth Agricultural Society, whose enthusiasm and untiring service will not be easily supplied. A good man has passed from out our ranks and gone to his rest,

"No more to walk into the garden,
As the white days lengthen,
To feel the pulse of nature,
And see her young life strengthen.

"And peer into the borders,
Pierced through with bud and sheath,
And fancy all that's doing
In secret underneath.

"Too well he knew she's working
Away from mortal sight,
With loom and still and palette,
Brushes, and colors bright.

"And weaving leaves and branches,
And filling honey cells,
And shaping stems and blossoms,
And fairy-cups and bells."

THE SECRET OF SUCCESS IN TRANSPLANTING TREES

In nearly every instance, lies in bringing the soil into close contact with the roots. It is not enough to throw the soil loosely over them, there is danger of hollows or cellars in which the roots, not being in contact with the soil, cannot absorb moisture so as to supply the waste by evaporation; pulverize the ground thoroughly and pack it firmly about the roots.

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SOME RECENTLY DESCRIBED HARDY APPLES.

We are under obligations to Mr. T. C. Robinson, of Owen Sound, for calling our attention to an article written for the *Rural New Yorker*, by Dr. S. H. Hoskins, in which he describes some apples recently discovered through the exertions of the Montreal Horticultural Society, and which are as yet mostly unpropagated, although many of them have been long known among the French population of the Province of Quebec. Several of these apples are regarded by Dr. Hoskins as belonging to the Fameuse or Snow Apple class, and seem to be descendants of that well-known and highly esteemed apple. The descriptions given are those of Dr. Hoskins as they appear in the extract sent by Mr. Robinson.

Fameuse Sucre.—This is an inviting blackish-red little dessert apple, it is of the same size as Fameuse, but much darker in color than the reddest of that very variable variety in respect of color; form roundish, or slightly oblate; flesh white, deeply stained with red; and very crisp, yet tender, at once mildly sub-acid and sugary, with an aroma of the most peculiar, penetrating, and enduring quality, more like that of some spicy foreign grape than of an apple. I am bold to say that no known apple equals Fameuse Sûcre in delicacy and piquancy of taste. It is a true revelation, in apples, of a capacity for flavor which we might look for in some rare tropical fruit, than in an apple from the extreme north. It is not a sweet apple, it is a deliciously sugared apple, as its name indicates, with a distinct aromatic acidity beneath the saccharine, like, yet unlike, the highest flavored strawberry. The season of Fameuse Sucree is from the middle of September until the last of October, or later. The tree seems as hardy as Fameuse; it is upright in growth, it spreads but gradually, its branches bear the bright gloss of health. Like Fameuse, it bears light and heavy crops alternately; those who have it say it equals Fameuse in yield.

Roseau.—This is not the Roseau of any of the books. The fruit is of even, medium size, oblate, basin wrinkled; color, a very dark red; flesh white, stained with red, crisp, juicy, sub-acid, high flavored. Season, September. Tree hardy and long lived, a moderate grower, with an upright close head; an early, yearly, moderate bearer.

Mountain Beet.—This is, in some respects, the most singular apple I ever saw. It is of medium size, roundish-conical, very dark-red, almost black, yet with the clear red shining through. But the curious thing about it is its flesh, as deeply red to the core as a blood-beet, with a red juice, staining the fingers like that of a strawberry. The fruit has the aroma, but not the sugared quality of the Fameuse Sucre—a sort of "country cousin" of that variety. This tree is in the hands of at least one nurseryman, is regarded as productive and hardy, and is being set for profit in the well-known fruit growing town of Abbotsford, P. Q. It is the only variety in this list of which I have yet been able to procure cions. Season of fruit, October and November.

Canada Baldwin.—Fruit, size of Fameuse; roundish-oblate, overspread with streaks and splashes of dark, over light red, with many distinct grey specks. Flesh white, often much stained with red, tender, crisp, juicy, mildly sub-acid. Keeps till May or June. The tree is a vigorous grower, with a somewhat upright though gradually spreading head. It has fruit spurs distributed evenly along its branches, and bears as young as the Fameuse, in alternately heavy and light crops. This variety has got out of the hands of the French, and is propagated and planted to some extent. It has the fault, on light soils, of sun-scalding upon the bark, but is otherwise hardy. Would probably do well top-grafted.

Pomme de Fer.—This is the late keeper of the Province of Quebec. There is a tradition that it was brought from Philadelphia over a hundred years ago, by the Seigneur of Chambly; but this is improbable, as it is not recognized as much resembling any American apple, while its seedling, the Canadian Baldwin described above, is of the distinct Canadian type. Tree fairly hardy, a moderate bearer. Fruit, above medium, roundish to a roundish-oblong, dull-red, with many very distinct grey dots, somewhat like the Flushing Spitzenburg. Flesh yellow, very firm, moderately juicy, mildly sub-acid, somewhat aromatic. This apple keeps till June or July, but is not highly recommended by the Montreal Society.

Strawberry of Montreal.—This is none of the "Strawberry" apples of the books. The tree is extra hardy, and its stout and vigorous growth, and clean, glossy bark, show it to be especially adapted to the cold north. It is erect in growth, without having a dense head. Fruit above medium in size, sometimes large, roundish-conic, yellowish, mostly splashed with red. Flesh yellowish, tender, moderately juicy, mildly sub-acid. It ripens with the Duchess of Oldenburg, but is a better dessert apple. Placed by many growers among the best five for profit, and I recommend it to the attention of your readers in the cold north-west.

Decarie.—Regarding this apple tree, I make the following extract from the invaluable report of the Fruit Committee of the Montreal Horticultural Society for 1876:—"The original tree, producing this noble apple, stood in Jeremie Decarie's orchard in Coteau St. Pierre, east of the Cote St. Luke road, which orchard is now owned by his grandson of the same name. It was cut down a few years ago. It was then about a hundred years old, had a butt as large as a flour barrel, and was of a height so remarkable as to be compared to an elm. The tree is a vigorous grower, and forms an erect head, which spreads but very gradually, so that though it attains great size, yet it may be planted fairly close. We have seen eighty, if not one hundred of these trees, planted fifteen years ago on the Coteau, and growing in sandy loam, and from these we judge the tree to be hardy and healthy. It bears light and heavy crops alternately. We once saw seven barrels under one tree which had been fifteen years planted. Mr. Lortie, after marketing them for many years, says they are very profitable. Fruit, on trees grown in grass, even when they have suffered from want of drainage, large; but when the soil was cultivated, very large, and commanding marked attention. Form, roundish-conic to oblong-conic, often deeply ribbed, with a deep, narrow, russety cavity, and a basin which, though medium in depth, is wrinkled and obscurely ribbed. Color, light or dark red, sometimes very dark all over, and covered with a beautiful bluish-white bloom, with many medium sized gray dots. Flesh whitish, rather firm, juicy, with, says Downing, a slight peculiar quince-like flavor. Season, September fifteen to October first."

With regard to the Famemse Sucre, the Fruit Committee of the Montreal Horticultural Society say that it is "an inviting, blackish-red,

little dessert apple. There are about a dozen trees of it in the orchard of the Hon. E. Prud'homme, at Coteau, St. Pierre. They have been planted some seven or eight years, but some of them are twenty years old. It has proved profitable, but is not among the five best kinds for profit. Its chief merit is as a dessert apple, for which purpose it comes in just before the middle of September." Of the POMME DE FER, the Committee say that it is not likely to be planted in future except in limited quantities for home use. They say of the STRAWBERRY OF MONTREAL that they know nothing of its origin, the oldest tree known to them is a grafted tree, planted by the late Charles Bowman, at Forden, Cote St. Luke, about the year 1835. Of late years, Messrs. Lacombe, Bigarreau, and Desmarchais, of Cote des Neiges, have propagated it largely. On the whole, they think it deserves more extensive cultivation as a hardy tree, whose fruit, ripening at the same time as the Duchess of Oldenburg, is yet superior to it in quality, and commands a ready sale in the market. The Committee say of DECARIE, that amateurs should grow this handsome fruit; but though it is hardy, saleable, and a heavy bearer, yet commercial orchardists name five other apples to be preferred before it. They do not mention the MOUNTAIN BEET, which is a singular fact, in-as-much as one of the members resides at Abbotsford, where Dr. Hoskins says it is planted for profit.

The varieties which this Committee name as the best for profit in that section of the country are; first the Fameuse, which holds the first place without a rival, especially on account of its adaptibility to various soils, and being their heaviest cropper, selling at $5 per barrel; second, the St. Lawrence, which brings, in the city market, thirty per cent. more than the Fameuse, in this way compensating for its smaller crop, which is from one-half to three-fourths that of the Fameuse; third, the Alexander, which bears about two-thirds as much as the Fameuse, and sells for $5 per barrel; fourth, the Red Astracan, which sells at $2 per bushel; and fifth, the Duchess of Oldenburg, which bears very nearly as well as the Fameuse, and sells in the city at from $1.50 to $2 per bushel.

SOME OF THE EARLY FLOWERING SHRUBS.

When the Winter is past, and the snow wreaths are gone, and the soft south wind comes in the place of him of the icy breath;

when the time of the singing of birds is come, as they return from their long visit to the lands of the south, how the eye lights up with gladness at the sight of the first opening flower, and the heart prizes the first heralds of returning verdure and beauty. These early flowers, what a charm they have; what pleasing thoughts they waken, touching alike the chords of memory and hope. The homestead that has none of these to feast the eye and cheer the heart, must be to its inmates the very castle of giant despair, whence hope has fled, and where memory is weaving garlands of withered leaves.

There is a goodly number of these early blossoming shrubs which can be planted about the home, some of them sufficiently hardy to endure the rigors of our colder sections, while others of them, especially those of the Almond family, can only be grown successfully in our milder districts. One of the most showy and hardy of these is the JAPAN QUINCE, *Cydonia Japonica.* It has been called by some the burning bush, for the scarlet variety when covered with its bright glowing flowers, is indeed an apt reminder of that which burned but was not consumed. It is a shrub of great beauty, putting forth its large blossoms in great profusion early in the spring, before the leaves are grown. Standing alone, or when used as a dividing garden hedge it presents a most charming appearance. When the flowers are faded, the neat, glossy green leaves are pretty, and as Autumn approaches the golden fruits shine brightly beautiful among the foliage. There is a variety which produces delicate pink flowers, or light salmon color, shading to white; but the flowers are not so profusely abundant as those of the scarlet. There is also another variety with very brilliant rosy red flowers, which are produced in great abundance, and whose fruit is larger and more showy than that of the scarlet. In striking contrast to the crimson and scarlet of the Japan Quince stands the beautiful snow white PLUM-LEAVED SPIREA, *Spirea prunifolia flore pleno.* This is the most attractive of all the Spireas; graceful in outline, abundant in flowering, every branch a bridal wreath, each flower a perfect rosette; in the purity of its whiteness; and elegance of its grace it is the acknowledged queen of the race. Nor is it beautiful only when the slender branches are wreathed throughout with white roses in miniature; all through the Summer bright glossy leaves clothe its graceful form, which change when Autumn comes on

to yellow and orange, and red and scarlet, with such a variety of coloring, and tints so glowing and yet so harmoniously blended, that now it seems to have become the burning bush, the eye rests upon it with a new pleasure, and the heart wishes that it might remain thus forever. A fitting companion for these is a shrub of more recent introduction, a native of Northern China, which has proved quite hardy, and may be called the CHINESE DOUBLE-FLOWERING PLUM, *Prunus Triloba.* It is a great acquisition, and well worthy of a place in the most select collection. The flowers are large, nearly double, of a clear pink, thus forming a sort of intermediate color between the Japan Quince and the Plum-leaved Spirea. The flowers are produced in great profusion, literally wreathing the branches before the leaves appear. Its habit seems to be more dwarf-like than that of the others that have been mentioned, hence it should be planted in the foreground where its beautiful peach-blow tints may be fully presented to view.

Grouped with these flowering shrubs should be planted another, having no showy flowers, but presenting by the peculiar color of its leaves a pleasing feature on the lawn; it is the PURPLE-LEAVED FILBERT, *Corylus Americana, var purpurea.* Coming into leaf while the other shrubs just described are in flower, its dark purplish-red leaves seems to bring out and heighten the beauty of their several colors; and when the flowers upon the others have passed away, the rich purplish coloring of these leaves remains, contrasting pleasingly with the glossy green foliage of its neighbors. All the Summer long the leaves retain this purple hue, making it one of the most showy of our colored leaved shrubs, giving beauty and richness to the grounds as a shrub that is ever in flower.

These few are mentioned, not that they are all the wealth of our early flowering shrubs, but that our readers may not be embarrassed in their selections by the profusion of over riches, and that they may be guided to those that will give variety within small compass. Besides it shows that it is possible that our rural homes should be made attractive with very small expenditure of means and labor. Much has been done in this direction, but there is also much that remains undone. Passing the homes of our thriving farmers, the tidy lawn, or if you please, door-yard, bright with blossoming shrubs and trees of beauty, is yet the exception. There is a reason for this, and that

reason pays no compliment to our taste or refinement. Away with the thought that refinement is to be found only in the city, that country cousin means something wanting in the appreciation or expression of grace and beauty. If it be so, why is it? Where are forms of grace and beauty set forth with hand so lavish as in the country? Where are models so fresh and pure, just sprung from the hand of Him whose every creation is but the expression of grace, to be found as here? With these before us continually are we to grow rude and coarse? Nay, let it not be; let us open the eye to the beautiful things the bountiful Father has given us, let us cluster them around our dwellings, let us educate our love of the bright, and beautiful, and graceful, until our country homes in their surroundings shall be the expression of the refined and lovely spirit that reigns within them. We make our lives weary with heavy toil, and think we have neither time nor strength for these mere adornments. In the days of pioneer life, when the battle for subsistence is stern and unremitting, perhaps there may be a necessity in neglecting the finer instincts of our nature. Yes, perhaps; for how many a pioneer's cabin have we seen garlanded with flowers; but let that be accepted; the pioneer days of our readers have long since passed. We forget that the mere adornments, as we like to call these things, both tell what we are, and have to do with making us what we are. For the children's sake then let the influence of home within and without be loving and lovely, that their early appreciation of the beautiful may expand and grow with their growth, and that in their communion with grace and refinement, as expressed in these refined and graceful creations, they may drink in the true spirit of gentleness with manliness.

HORTICULTURAL GOSSIP.

BY LINUS WOOLVERTON, GRIMSBY, ONT.

THE PEACH.—I do not see why the scientific names of our fruits should not sometimes be used in our horticultural journals. Students of botany and entomology in their journals are very particular to speak of the different species by their scientific names, and it seems to me that if we were occasionally to do the same in practical horticulture it

might advance a scientific knowledge among growers of fruit. Had I headed this paragraph *Amygdalus Persica*, or *Persica Vulgaris*, I wonder how many would have at once known that the peach was referred to.

In point of hardiness there appears quite a difference among the varieties of the peach. The late unusually mild Winter very much developed the fruit buds, and the cold of March 24th, when the thermometor registered 11° above zero, tried them severely. The most valuable variety seems also to be one of the most tender, viz, the Early Crawford; it has suffered much, at least three-fourths of the fruit buds being frozen. The Early Purple, a peach almost unsaleable in seasons of great abundance, is proving itself valuable for its hardiness, its fruit buds being perfectly intact; nor is this the first time this variety has escaped when the Crawford has succumbed to a Canadian Winter. Next in hardiness comes the Early Beatrice, and after it, perhaps, the Hale's Early. The old Mixon is quite as tender as the Crawford, and indeed I think more so.

Peach Crates.—The bushel crate usually accepted in Grimsby has the ends 8x14 inches, and the sides 24 inches long; while the three-peck crate is of course 6 inches wide, instead of 8 inches, or just ¾ of the bushel size. Complete uniformity in measure of all fruit packages is very much to be desired. Certainly packages holding short measure never brought permanent profit to the shipper using them, while more frequently they bring him well merited disgrace.

Ladders for Peach Picking.—Of course nothing is so useful in a peach orchard as a good supply of step-ladders, but where these are counted too expensive, a very simple contrivance may prove very serviceable among large trees. It consists of one stout pole morticed into a base made of scantlin, and having rounds for climbing, as is shown in the engraving. A rainy day in Spring-time would suffice for making several of these, and they will prove very light and serviceable when the busy season of picking comes on. They can be used in trees where a two barred ladder would be useless, for the end of the pole will rest in any crotch with perfect safety.

WILSON'S ALBANY STRAWBERRY.

It is both interesting and profitable to take a look at the changes which time makes in the horticultural world, and sweeping the eye over the space of a quarter of a century, gather up some of the lessons which the retrospect may teach. It is now a little more than twenty-five years ago that the late James Wilson, a nurseryman of Albany, in the State of New York, raised several seedling strawberry plants from seed of the Ross Phœnix, Hovey and Black Prince. It is not supposed that he endeavored to combine the qualities of any of them by means of artificial cross-fertilization, but inasmuch as the plants of these varieties were growing in near proximity, trusted to natural means for any impregnation of the one by pollen of the other. Of these seedlings only one gave promise of being valuable. This one he preserved and multiplied, and in the Summer of 1853 exhibited some of the plants in bearing at the exhibition of the Albany Horticultual Society. But his exhibit at that time did not attract much attention. His failure to excite any interest in the minds of others in his new seedling strawberry did not prevent him from bringing it forward again the following Summer. He now showed a number of the plants in pots, laden with fruit, and such was the size and number of the berries upon each plant that people were astonished, curiosity was excited, and public attention fairly aroused to the examination of the claims of this new strawberry. Intelligent and experienced cultivators of fruit clustered around the stand on which the plants were displayed, and many then united in the opinion that for productiveness, size of berry, firmnness of flesh and good flavor, it would surpass any then known variety as a valuable market strawberry.

And what were the varieties that were then relied upon for home and market purposes? We find on looking back, that in 1846 the then great American authority in horticulture, A. J. Downing, names Hovey's Seedling and Black Prince as best adapted for extensive culture for market; and for the two best sorts for family use, one early and one at the middle season, he names Large Early Scarlet as the best of all early sorts, and for the other, Hovey's Seedling or Black Prince, adding that the two latter are both large fruits, productive and excellent. The varities then most in cultivation were the Black

Prince, Early Scarlet, Hovey, Hudson, Princess Alice, British Queen Myatt's Eliza, Ross Phœnix and Swainstone's Seedling. At this time, Hovey's Seedling Strawberry had been in cultivation for twelve years, and it was in this year, 1846, that the Massachusetts Horticultural Society awarded a piece of plate of the value of fifty dollars to the Messrs. Hovey, of Boston, as a special premium for the strawberry raised by them, HOVEY'S SEEDLING.

In 1847 the Cincinnati Horticultural Society offered a prize of one hundred dollars for a new American strawberry, which after thorough trial should prove to be superior to any then in cultivation. In 1851 the society awarded this prize to Mr. McAvoy, a cultivator of strawberries in the vicinity of Cincinnati, for one of his seedlings which they named McAvoy's Superior, deciding that it was superior to Hovey's or any other strawberry that came under the examination of the committee. At this time we find that the varieties were Hovey, Burr's New Pine, Black Prince, Alice Maud, Early Scarlet, Jenny's Seedling, Roseberry, Genessee, Monroe, Climax Scarlet, Boston Pine, Crimson Cone, Royal Scarlet, Swainstone's Seedling, British Queen, Myatt's Eliza, Buists' Prize, Willey, Rival Hudson, Myatt's Pine, Crimson Cone, and some others of less note. It was in this year that Mr. Wilson raised his seedling strawberry plants, among which was his now well-known Wilson's Albany, and such were the varieties with which it had to compete. What they were may be gathered from R. G. Pardee, who was in those days authority on all matters connected with strawberry culture, a gentleman of sound judgment, extended observation and sterling integrity; one whom it was a privilege even to know, but whose friendship is one of the sunniest remembrances of life. He has passed on now. Will they who found so much delight in talking with each other of the fruits of earth, find a like bond of union in the fruits of that other land? Mr. Pardee, writing in the Summer of 1852 says that Burr's New Pine "has maintained its high reputation as a family fruit. All my visitors have united with me in giving it the preference in flavor over all others. Monroe Scarlet has this season proved to be the largest bearer on my grounds. Rival Hudson is one of the most productive market fruits. Willey has borne next in quantity to Monroe Scarlet. If I wished to set out a bed for family use I would plant one-fifth each of

Burr's New Pine, Hovey's Seedling, and Monroe Scarlet, and remainder of Crimson Cone, Large Early Scarlet and Boston Pine. For market I would largely add Rival Hudson and Willey."

In 1852 the American Pomological Society considered as worthy of general cultivation the Boston Pine, Hovey, Jenny's Seedling, and Large Early Scarlet. These varieties continued to stand among the leading sorts for several years. Very little was heard of Wilson's Albany; no pains being taken to bring it into notice. In 1856 John Sloan, of Albany, fruited a bed of three hundred plants and found them to be more prolific than Early Scarlet or Crimson Cone. In October, 1857, Mr. John Wilson, the son of the raiser, sent some plants to Mr. J. Jay Smith, in Philadelphia, the then Editor of the *Horticulturist.* In 1858 H. H. Mish, of Harrisburg, Pennsylvania, reported that he had received some plants of this variety during the previous Autumn, and that it promised to be productive and valuable. Dr. Russell, of Hartford, Connecticut, reported it *very* productive, berries dark red, firm, juicy and well flavored: at the meeting of the Fruit Growers' Society of Western New York, held that Summer, Burr's New Pine and Early Scarlet, received each seven votes for amateur cultivation, Wilson's Albany and Hovey each four votes, and for market Early Scarlet received eight votes, Crimson Cone and Wilson's Albany each seven, Hovey four, and Burr's New Pine only two. The American Pomological Society in that year added it to their list for general cultivation.

Thus we see that five years had elapsed from the time of its first introduction at Albany before it had become sufficiently known to obtain a place in the list of the American Pomological Society. Passing now over a period of a dozen years, we find, on looking at the Report of the American Pomological Society for 1871, that out of fifty States and Provinces, represented in that Society, the Wilson's Albany has found its way into twenty-six, in all of which it is recommended, and in fourteen of them it is double starred to denote superiority. Meanwhile where are the varieties which stood in the front rank of strawberry culture when Mr. Wilson first placed his new seedling on the table of the Albany Horticultural Society? Only four of them, Boston Pine, Hovey, Early Scarlet and Victoria, can be found at all in this report. Of these, Boston Pine is recommended in five States,

Hovey in sixteen, but double starred only in Massachusetts, the State of its birth. Early Scarlet is recommended in ten States, and Victoria in eight. Of those which had since attained a position on the Society's list, the Triomph de Gand stands next to Wilson's Albany, being recommended in fifteen States, and double starred in five of them.

Passing on now down the current of time, over a lapse of six more years, we look into the Report of the American Pomological Society for 1877, which has just come to hand. With thirty varieties now on the list, Wilson's Albany is still in advance, distancing every competitor in the race. Of fifty States, Provinces and Territories yet represented, this strawberry is recommended for cultivation in thirty-six and in twenty-six of them it receives the double star of great superiority and value. These places extend from 28° to 49° north latitude, and from the Atlantic to the Pacific coast. We still find our old friends, Boston Pine, Hovey, Early Scarlet, and Victoria on the list. Boston Pine is now recommended in six States, Hovey in seventeen, with the double star in Massachusetts only, Early Scarlet in ten, and Victoria in seven. Triomph de Gand still holds rank next to Wilson's Albany, being recommended in twenty-four States and double starred in six of them, while next to that stands the Charles Downing, recommended in twenty-three States and double starred in six.

The history of this strawberry teaches some interesting lessons. Without puffing, nay, in spite of many hard speeches, with even the note at the foot of the list, in the Report of the American Pomological Society now before us that it is of "poor quality," this fruit has spread in a quarter of a century over more than half a continent, and more thousands of bushels of it are consumed every year than of any other berry. How comes it that a fruit of "poor quality" should be so universally cultivated? May it not be possible that our standards of excellence need some revision? It would be a long list indeed that should contain the names of all the strawberries which have been brought out with great flourish of trumpets, as far better in quality and fully as prolific as Wilson's Albany, that have had their day and passed into oblivion. The verdict of the public is in favor of the Wilson; it has stood the test of time, and of great variety of soil and climate, and we may as well accept that verdict, for it is doubtless correct.

There is a question, too, that one may easily ask, that is not so easily answered. What quality or peculiarity of constitution is possessed by this plant that it can adapt itself to all soils and climates, and be equally valuable and productive in Nova Scotia and in Florida, in Connecticut and in California?

What, too, shall we say of the skill of our hybridists? Although Mr. Wilson was always confident that his "Albany" was produced by a cross between Black Prince and Hovey's Seedling, yet we believe he never pretended that he had artificially impregnated the one with the other, but that it was one of those chance cross-fertilizations which may happen under favoring circumstances. That it was certainly a cross between these two sorts cannot be affirmed. But what have the labors of our hybridists, who have taken the strawberry in hand, as yet accomplished? Where is the berry that has been the production of their skill, which has achieved anything approaching to such success? Many indeed have been the champions on the strawberry field who have came out in full panoply to run a tilt against this stripling, friendless and unarmed; but the smooth pebble from the brook has silently done its work; not even was the dull thud heard as it sunk into the brain; and when the champion fell, there was no crash nor jar, for he who came forth with such giant claims, shrunk, as he fell, to his true proportions.

There is a lesson, too, for "committees on new fruits." McAvoy's Superior, to which was awarded the prize of one hundred dollars in 1851, in twenty years had disappeared entirely from the list of the American Pomological Society, while the Wilson's Albany, which first found a place on that list in 1858, has spread itself during these twenty years yet farther and wider, and stands to-day the acknowledged chieftain, despite the cold shoulder of fruit committees and critics. That which is really valuable, which possesses in any large degree the quality of usefulness, will find its own way into public appreciation; nay, will be sought out, and brought into notice without the help of committees, while that which fails in these qualities will go into forgetfulness, the silver cup, medal or prize serving only the purpose of a tombstone.

And last, we take issue with those who say that Wilson's Albany is of poor quality. To our taste it is richer by far than Triomph de Gand or Jucunda. A false impression has gone out by reason of

judgment having been passed upon the fruit when it was unripe; and as some who are supposed to be authority in such matters have given expression to this opinion, it has become the fashion among the "upper ten" of the horticultural world to call the berry "sour." But when the fruit is allowed to become ripe, which is not when it first turns red, but when the seeds have become dark brown and the berries assume a mohogany color, then will its true richness and flavor be developed, and the fruit be found to possess that commingling of sweet and sour which is sprightly, refreshing and agreeable. For those whose taste demands a greater degree of sweetness, sugar may be added without destroying the flavor, but they will be few who will require much addition of saccharine beyond that which the perfectly ripened berry yields.

With a record such as the one we have now presented, the Wilson's Albany will commend itself to the planter, whether he purposes merely to furnish his own table or to supply the market.

THE GRAPE-VINE FLEA-BEETLE.

BY HENRY BONNYCASTLE, CAMPBELLFORD, ONT.

I am in trouble with my grape-vines. I have a small vineyard of about thirty vines, well trellised, some of them 1½ inches in diameter. They all started their buds properly this Spring, but since then one-half of them have remained in the same state, the buds turning yellow and looking sickly; I found a lot of small dark blue bugs on the buds, they appear to eat into the heart of the bud, and are difficult to catch. I made a solution of soap suds, putting one table spoonful of hellebore into one pailful, and watering the vines with a rose on the watering pot. I apply every Spring around each vine old rotted horse manure, raking in wood ashes, and keep the ground in clean order. Would you be kind enough to advise me what to do. It is very disheartening to lose the vines after so many years of care and labor. The vines are Delaware, Adirondac, Salem, Concord, Hartford, Israella, Martha, (white), Eumelan, and Clinton. The Adirondac, Delaware, and Salem are most affected. I am trying to catch the bugs by hand, but find it

damages the buds doing so. I intend sprinkling with soap suds until hearing from you.

I am glad to report the Burnet vine is coming on well. The monthly pamphlet of the Association is a very great improvement, and sincerely trust it will succeed.

SNAP OR STRING BEANS.

These are so easily grown that there is no reason why they should not find a place in every garden and on every table. The plants are dwarf and bushy, not requiring any support, and will grow in any dry and mellow soil that is in good condition and well tilled. They do not thrive in cold wet soils, nor in shaded situations. Being very sensitive to frost, they should not be planted until the weather has become warm, and danger from frosts after they are up has passed. It is usual to plant them in the garden in drills, sowing quite thick, so that if the cut-worms attack them there may be some to escape. They may be planted about three inches deep in the drill, and the rows eighteen inches apart. They should not be hoed or handled when wet with rain or dew, as that causes the leaves to turn brown, with a rusty appearance. As soon as the pods have nearly obtained their usual length, and while the beans are yet quite small, they may be gathered for use. They are prepared by breaking off the end and pulling the string down the length of the pod, and then snapping the pods into smaller pieces. Because of the string which is removed from the edges of the pod in preparing them for cooking, they have been called string beans, and for the reason that after the string has been removed they break with a snap, if gathered at the right age, they are also called snap beans. After being broken into suitable pieces they are boiled in water until quite tender, and then served with a little salt and butter.

There are a number of varities now in cultivation, each having some peculiarity by which it is distinguished, and on account of which it is prized by those who grow it. The Early Rachel is considered a desirable variety because of its hardiness, and coming soon into use. We have found the Early Mohawk to be one of the most hardy sorts,

enduring cold winds and chilly weather, and even light frosts. It is very productive, the pods are tender, and if gathered as fast as they become fit for use, will continue to yield a good supply for some time. The Refugee is an abundant cropper, but later, coming into use in about eight weeks after planting. It is much esteemed for pickling, on account of the thick, fleshy character of the pods. The Wax or Butter variety has become very popular in our markets; the pods are thick, fleshy and of a waxy yellow color, and very tender, but to the writer's taste they are very deficient in sweetness and richness of flavor. Their delicate, almost transparent appearance, and tenderness, will make them sell readily, no matter about the flavor, and they are as prolific as the most enthusiastic market gardener could reasonably ask. The Broad or Windsor Bean, so generally grown in England, is not used as a string bean, but shelled and only the beans used. It does not usually do well in our climate, probably owing to our greater heat and dryness. The White Marrowfat is not as desirable for use as a string bean as the other sorts that have been mentioned; but for use shelled, either green or dry, and particularly as a baking bean, is of the first quality. This is the variety that is extensively grown for market in a dry state, and has become an article of considerable commercial importance, commanding from a dollar to a dollar and a half per bushel.

CHANGING THE BEARING YEAR.

BY GEORGE PEACOCK, MOUNT SALEM.

A hint to amateurs. Having two Snow Apple trees, both bearing the same season, it was desirable to have snow apples every year, so we picked the blossoms from one of the trees in May, 1876. The year following we had snow apples, and the indications now are that the trees will bear alternately.

The boys are operating on the sweet apple trees this season, in hopes of having fruit next year, by changing the bearing year of part of the trees.

The Canadian Horticulturist.

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HORTICULTURAL GOSSIP. II.

BY LINUS WOLVERTON, GRIMSBY, ONT.

The Term Horticulture means garden culture, or the art of cultivating gardens, and I notice that English books and Philadelphia magazines seem to confine it to gardens in which flowers and vegetables, or perhaps small fruits are grown. But here, and in Western New York, the word is used in a wider sense, to embrace the culture of fruit in general, as well as of flowers and vegetables; and it seems to me justly, for the successful growth of apples, pears, and peaches implies that careful and rich cultivation, as well as that beauty which belongs to the idea of a garden.

The Northern Spy Apple.—In the month of March of the current year I opened a barrel of this fruit. It was a perfect luxury. So crisp and juicy, so beautiful for dessert, so delicious for cooking, so attractive for market; surely it is destined to hold the first place among our Winter apples. True, the Roxbury Russet keeps longer, but I had rather for a longer interval preserve the remembrance of the superb Spy, than spin out the season a little longer with the dry tough-skinned Roxbury Russet.

Most growers are too eager for the fruit to wait from twelve to fourteen years for the Spy, but I agree with J. J. Thomas, who says "it is worth waiting for;" and when once it begins bearing, it yearly rewards the patient husbandman with loads of beautiful fruit.

There is one class of orchardists, however, whom we would advise not to plant Northern Spy, and that is those who expect abundance of fine fruit with little outlay of cultivation, and still less application of manure. Such persons had better grow some other kind of apple, for

the Spy requires the best of cultivation, and abundance of manure, or it will prove a source of vexation and disappointment.

The *American Agriculturist* for 1862, page 367, has an enconium on the Spy. It is there spoken of as the best and most profitable apple for table and market, as commanding a high price even when other varieties are abundant, and as being hardy because it blossoms late.

I am inclined to think the habit it has of developing its leaves and blossoms late, is useful in more ways than one. The eggs of the Canker worm and of the Tent Caterpillar hatch out almost simultaneously with the leaves and blossoms of other apple trees, but the little worms nearly starve on the Northern Spy, before the leaves are developed.

SPECIAL MANURES FOR ASPARAGUS.

BY JOHN ELKINGTON, M. D., OMPAH, ONT.

I was much pleased and interested on reading an article in No. 2 CANADIAN HORTICTLTURIST. Anything tending to the increased cultivation of Asparagus is very desirable, on account of its delicate flavor, its great earliness, the ease with which it is cultivated when once established, and its very valuable dietetic qualities; and with regard to the latter, it may not be generally known that it posesses medical virtues of an undoubted value, especially in the Spring-time, after a long Winter, when in many cases the diet has largely consisted of salt meats and "hard tack."

This delicious vegetable has been a specialty with me for many years. The writer of the article above alluded to, says it is a marine plant, and requires salt as a manure. Knowing that, and reasoning by analogy, I made many experiments upon the use of saline manures for this plant, and as the result of these, have been in the habit of adding one pound of sulphate of magnesia to each peck of salt, as an annual dressing, with marked increase in size, and especially a heightened color of the rich bronze-green or the tops. This mixture, with plenty of leached ashes, lime in any shape, preferably in the form of gypsum, applied in the Spring, and last year's hot-bed as a top-dressing in the Fall, has always given me satisfactory results. One year, after a long

sickness, there was a large quantity of "Tidman's sea salt" left over, which had been purchased to use for sea water baths; this went on to the Asparagus bed, and I honestly believe it did the plants more good than the baths did to my patient. If iodine could be got in a cheap form, I should like to try a dressing of that, being well assured it would be of benefit in a land so far removed from the sea. They who live in the maritime provinces might manure with sea-weed.

I find the safest time for forking over the bed is generally, in this locality, about the end of April, when the frost has left the upper four or five inches of the ground, and yet remains lower down; there is no fear of injuring the roots at this period, and you can dig straight away without trembling for the crowns.

One word about cutting low, or cutting high. My practice is to cut an inch or so below the surface, for if you cut only the green, eatable part, the underground stem goes on growing above the surface, and there is gradually produced a lot of hard unsightly stubs all over the bed, which are greatly in the way of subsequent cuttings. There is practically no risk of dividing unseen heads by this method, if the stems are cut with brains and a common jack-knife. Another thing, however indecorous it may be, a good many really do like to take hold of the white piece in their fingers to eat it by; very shocking, but it is true. And again, there can be no manner of doubt that it sells better bunched up white and green. Lastly, if you have to cook it yourself you will find the benefit of a piece of hard stock at the bottom, "*me crede experto.*"

OUR PRESENT FRUIT PROSPECTS.

BY B. GOTT, ARKONA, ONT.

On the mornings of the 13th, 14th, and 15th of May we were visited by extraordinary keen frosts, which did much damage to our fruit and to our grain, and somewhat changed the aspect of our whole fruit condition for the season, which at one time promised to be a very unusual and abundant general fruit crop. That cold snap fell most seriously upon our grapes and strawberries, damaging both these very valuable fruits to the extent of fully two-thirds of the entire crop. Both

these fruits were at the time just in the condition to be most seriously and generally injured by a frost. In the case of the grapes, the young shoots were out from six to twelve inches long, fully exposing the young tendrils covered with fruit germs, and of course very tender and most easily affected. In the case of the strawberries, the corolla and calix were still pointing upwards, placing the young and tender germs in the condition to be most seriously affected by frost. In consequence, we shall suffer in both these crops; and there is considerable complaining throughout the country. Currants and gooseberries too, whose fruit was nearly grown to full size, were severely injured also by the frost, I think fully to the extent of one-third the entire crop. raspberries and blackberries not being quite forward enough to be so easily injured, escaped the effects of the frost. Apples, pears, cherries, plums, and peaches, although each of them was slightly affected by the frost, yet in the case of each, the promise at the present is for a most abundant and unusual crop. Every tree nearing maturity was literally covered with blossoms, most of the germs being fertilized and setting very thickly over the trees. But this is not true of those trees that were defoliated by the tent caterpillars last season; no blossoms whatever appeared upon them. I might mention also that the effects of the frost were so severe as to totally kill young Tent Caterpillars on the leaves of our young trees; also the young and tender growths of Norway spruce and balsam fir were seriously frozen and killed; so of black and white walnuts, chestnuts, hickory, &c. Our grains, and our grasses, in their young growths, have also suffered, and are severely injured in their leaves, and the stems of clover were frozen. This is a very unusual occurence, but then this whole season has been a very unusual and remarkable one from the beginning.

With respect to insects, allow me to report that they are at the present time very abundant, and very industrious and exceedingly destructive in their effects upon our young foliage. The Winter and Spring has been the most favorable for the preservation and development of insect life.

I wish to report that the Currant Worm, *(Nematus Ventricosus,)* is unusually abundant this season, and even now many gooseberry and currant bushes are totally denuded. We first observed them working April 25th, and most abundantly on the gooseberry leaves; and by

May 1st, the numbers were so so great that many of the bushes were stripped, and they threatened the entire destruction of the foliage in the whole plantation, but not appearing to fancy currant leaves. I think I never saw such large numbers gathered together; the bushes were literally alive with them, and the foliage disappeared in a remarkably short time. To check this wide-spread destruction, we applied powdered white hellebore in pretty strong doses, say a heaped table-spoonful to one pail of water, and sprinkled it over the bushes by means of a rose sprinkler; but this appeared to have little perceptible effect upon the insects. We then applied a second dose, stronger than before, which had the effect of rendering them inactive, and finally brought the most of them to mother earth. We also found that by shaking the bushes we could bring them to the ground, and then by means of our broad feet crush them to dust. I am sorry to say, however, that many allowed them to work away unmolested, and effect a total defoliation of their bushes; people of this type are to be found in almost every neighborhood. Present indications are, that the Forest Tent Caterpillars, *(Clissiocampa Sylvatica,)* are not so numerous or so destructive as they were last season, but they may still come out in large forces. The beautiful warm and summer-like weather we have had for the most part has had the effect of bringing into activity a large and varied force of active and devouring insects. What our developments may still be we are positively unable at present to foretell, but we have every assurance that we will have enough and to spare, for we have never yet seen a season when the Divine promise has not literally been abundantly fulfilled, "Seed time and harvest shall not fail."

Yesterday, the 19th inst., a delightful, warm, steady, and refreshing rain visited us, and has seemed to cheer the whole aspect of nature, and give a bright appearance and renewed vigor to our needy vegetation.

THE BEURRE BOSC PEAR.

More than thirty years ago the late A. J. Downing said, "among Autumn pears, the Beurre Bosc proves, year after year, equally deserving of praise. Its branches are regularly laden with large, fair, and beautiful specimens, of a fine yellow, touched with a little cinnamon

russet, which ripens gradually, and always attains a delicious flavor. With many sorts of pears it is unfortunately the case that only one fruit in ten is really a fine specimen; with the Beurre Bosc it is just the reverse; scarcely one in ten is blemished in appearance, or defective in flavor. It is, in short, a standard fruit of the highest excellence and worthy of universal cultivation."

And that which was so well and truly said of it in 1846 remains true of it to-day. The fruit is not borne in clusters as is the case with many varieties, but singly, or at most in pairs, and is very evenly distributed throughout the tree; hence, each fruit is fully developed in form, size, and flavor. It is recommended for general cultivation in twenty-two states and territories; and in Massachusetts and New York is put down as being a fruit of great superiority and value. Nurserymen have never taken it in hand to make a run on it, hence it has not been as widely disseminated as many sorts of more recent introduction. When young, the tree has a very ungainly habit of growth, and requires much attention and no little skill in pruning to bring it into a saleable shape; for this reason it costs the nurserymen more to bring into market a thousand trees of this variety than two thousand of Bartlett or Burre d'Anjou, and as a consequence it is not extensively cultivated. In the Report of the Fruit Growers' Association for 1869 it is put down as being unable to bear the cold Winters of Frontenac, Addington, Lennox, Hastings, Prince Edward, Northumberland, Durham, Ontario, and York; but in Peel, south part of Halton, and in Wentworth it is mentioned as being a desirable variety to plant, also in Lincoln, Welland, Haldimand, Elgin, Norfolk, Oxford, south of the Great Western Railway, Middlesex, south of the same line, Kent and Essex. On the other hand we notice that in the Report of the American Pomological Society for 1877, it is recommended for general cultivation in Maine, New Hampshire, and Vermont. With these facts for the guidance of Canadian planters before them, it would be well to experiment cautiously with this variety where hardy pear trees are necessary, but in the milder sections where pear trees of most sorts thrive well, the Beurre Bosc will give great satisfaction, both to the amateur and market orchardist, for the fruit will command the highest price in our city markets, and those who have once become acquainted with its rich, aromatic flavor will purchase again.

GRAFTING BEARING APPLE TREES.

BY J. M. McAINSH, ST. MARYS, ONT.

When my apple orchard came into bearing some years ago, I found that I had more Summer and Fall varieties than I needed for my own use. On trying to dispose of them, I found they were a perfect drug, the market being completely glutted with them. I grafted them with good Winter varieties, which have done well, and are now coming into a bearing state. I think this is a better plan than rooting them out and planting young trees in their stead. Of course if the grafting is done in an improper manner the trees cannot be expected to do well; and in the case of very old trees, probably the best way would be to root them out, and plant young trees in their stead. But in the case of young healthy trees, say from ten to fifteen, or even twenty years old, if they are properly grafted they will soon form large well-formed heads, which will bear a considerable quantity of fruit, while small trees just taken from the nursery would only be making wood growth. All through the country there are many vigorous, healthy trees, bearing only poor or unsaleable fruit, which, if they were grafted with profitable varieties, would in the course of a few years be a source of profit to their owners.

HOW TO RAISE COLOSSAL ASPARAGUS.

BY T. B., NEW YORK.

The following method of raising Colossal Asparagus was written in 1846, but is just as true and to the point to-day as then. We copy it for the benefit of our readers who wish to raise an extra fine article, and because his remarks upon cutting the shoots so fully corroborate the suggestions we ventured to give on this point at page 40. Our author says:

"About the first of November, or as soon as the frost has well blackened the Asparagus tops, I take a scythe and mow them close down to the surface of the bed, let it lie a day or two, then set fire to the heap of stalks, burn it to ashes and spread the ashes over the sur-

face of the bed. I then go to my barn-yard, take a load of clean, fresh stable manure, and add thereto half a bushel of hen-dung, turning over and mixing the whole together throughout. I apply one such load to every twenty feet in length of my Asparagus beds, which are six feet wide. With a strong three-pronged spade or fork, I dig this dressing under. In the Spring, as early as possible, I turn the top of the bed over lightly once more, and cover the surface about a quarter of an inch thick with fine packing salt; it is not too much. As the Spring rains come down it gradually disolves. Not a weed will appear during the whole season, but it would do your eyes good to see the strong, stout, tender stalks of the vegetable itself, pushing through the surface. I do not at all stretch a point when I say that they are often as large round as my hoe handle, and as tender and succulent as any I ever tasted. The same round of treatment is given to my bed every year.

"I have a word to say about cutting Asparagus and then I am done. Market gardeners, and I believe a good many other people, cut Asparagus as soon as the point of the shoot pushes an inch or two through the ground. They have then about two inches of what grows above ground and from four to six inches of what grows below. The latter looks white and tempting; I suppose people think that because the white part of celery is tender the white part of Asparagus must be too. But it is as tough as a stick, and this is the reason why people, when it is boiled, always are forced to eat only the tops, and leave the bottom of the shoots on their plates. My way is never to cut any of the shoots below the surface of the ground. Cut it as soon as it has grown to proper height, say five or six inches above ground. The whole is then green, but it is *all tender*, it will melt in your mouth.

THE PLUM CURCULIO, *Conotrachelus Nenuphar.*

BY WM. SAUNDERS, LONDON, ONT.

The season when the "little Turk" begins his destructive work on our plum crop is at hand, and it behoves all growers of this fruit, henceforward for several weeks, to make a vigorous onslaught on this stealthy foe. Although the Plum Curculio has been so often described, and is

so well known to the majority of our readers; still we find many beginners in fruit growing who have not yet made its acquaintance, and for their benefit we insert the accompanying figure, and give a brief description of the insect. In figure 8, *a* represents the larvæ; *b*, the chrysalis, and *c* the perfect insect, all magnified, the lines alongside of the figures showing the actual size of these objects; while *d* represents a small plum, with the well-known crescent mark of the insect, and the little beetle of natural size, crawling on the fruit. The Plum Curculio is a little, dark-gray or blackish beetle, about one-fifth of an inch long, with a rough, rugged surface, and having on the middle of each wing-case a black shining hump, bordered behind with a broad band of yellowish white; it is also furnished with a short snout. When this little creature is alarmed, the snout as well as the six short legs are drawn in close to the body, and the insect falls suddenly to the ground, where it lies motionless, much resembling a bit of dirt or a little dried up bud. In consequence of its peculiar inanimate appearance when thus "playing possum," it frequently escapes detection; but when taken up between the fingers and placed on the hand, it quickly manifests symptoms of activity, and endeavors to escape, either by running or by flight.

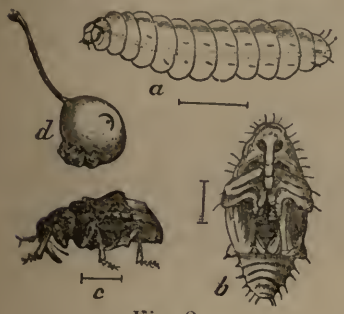

Fig. 8.

The beetle deposits its eggs, one at a time, just under the skin of the plum, which is cut with a crescent shaped incision, deepened in the centre, where the egg is deposited. Here the young larvæ hatches, and eats its way into the fruit, burrowing about towards the middle, and so affecting the vitality of the plum that it falls prematurely to the ground, where the worm as soon as it is full grown escapes, and burrowing under the surface shortly becomes a chrysalis, from which in due time the perfect beetle emerges.

When a tree on which these beetles are working is suddenly jarred they become alarmed, and fall to the ground, where they feign death in the manner described, and by taking advantage of this peculiarity, and jarring our trees in the proper season, the great bulk of these enemies may be captured and destroyed, and a crop of plums secured.

The proper method is to begin early, that is, soon after the plums have set, and repeat the operation daily for a week or more, and after that every second day for two or three weeks longer, or as long as the insect appears to be prevalent. Small trees should be jarred with the hand, larger ones may have one of their lower limbs cut off, leaving a few inches of stump, the end of which may be struck with a mallet; or a hole may be bored in the tree and an iron bolt inserted with a large flat head, which latter may be struck with a hammer or mallet. A suitable sheet must be provided to be spread under the tree; one made according to the following directions will answer the purpose well. Take nine yards of cotton, cut it into three lengths of three yards each and stitch them together, then take two strips of pine, an inch square and nine feet long, and tack the two outer edges of the sheet to these strips. Now tear the cotton sheet down the middle, half way, and it is ready for use. By means of the strips this sheet can be readily spread while the rent admits the trunk of the tree to the centre. Shaking the tree will not do, it must be jarred with a sudden blow, and the insects which fall on the the sheet be picked up and destroyed. Morning and evening will be found the most favorable times for this work, as the insect is then less active than in the middle of the day.

Various other remedies have been suggested, many of them worthless, but among the best of them, air slacked lime or sifted wood ashes thrown up into the tree in the morning while the dew is on the foliage, or thoroughly smoking the tree by burning coal tar under it. By any of these methods the leaves and fruit are more or less coated with material offensive to the insect, but we doubt whether the use of either of them is so effectual as jarring, and since they require to be repeatedly applied, we question whether they would not be more troublesome to carry out than the jarring process.

THE POOR MAN'S GARDEN.

FROM SOCIAL NOTES, LONDON, ENGLAND.

Among the chief of the many improvements which this our dingy metropolis has received within the last few years, must be classed the attention given to flowers and window gardens. The very rich have

their conservatories and plantations, the well-to-do in London their greenhouse and their parterre, the humbler lovers of all green things their fern-case and flower-stands; but the dwellers in the one back room, the weary city clerk with his limited salary, his many mouths to feed, and his circumscribed house-room, have only their window garden—their long wooden box, enriched it may be with gaudy tiles—wherein to plant their childhood's favorites and keep the color of God's carpet green in their memories.

Flowers and music make the poetry of life, and the more the toilers in this city of brick and mortar are made familiar with them, the better for their mental and moral health. This conviction has spread rapidly during the last few years, the rich having set the example by festooning their town houses with hardy climbers, while their balconies are filled in Summer with flowers.

The subtle influence of flowers on mankind is so thoroughly admitted, that it seems as though the remembrance of the 'garden the Lord planted' has never died out of the perception of the human race; the love and cultivation of plants has always had an elevating tendency—a drawing near to those far-off days of innocence when the trees and flowers and song of the wild bird were man's delight, as he 'walked with God.'

The Dean of Westminster, other dignitaries of the Church, high-born ladies, and people of wealth and leisure, have done much lately towards fostering this growing feeling among all classes by giving prizes for the best plants grown in dingy back yards and smoky garret-rooms; and it is as astonishing as it is touching to find how, like a human being, the little plant adapts itself to its surroundings, and throws out its beauty and fragrance in return for a little patience and tender care.

Annual exhibitions of workmen's flowers take place patronised by the highest in the land; in all directions efforts are being made to spread the growing taste, and, above all, to give the toiling man and woman a home interest, a something to tend and watch, which is nature's only safeguard against selfishness.

Few who have visited the sick, whether poor or otherwise, have not seen the flush of pleasure that tints their pale cheeks at an offering of flowers.

After those plant shows, where children exhibit, if the little window gardeners were encouraged to give their prize blossoms to the old and sick of their acquaintance, a feeling of kindliness and generosity in the young would be sown that would bear the fruits of charity hereafter.

I believe that flower sermons are given now and then by those good clergymen who have a special interest in the young. Each child brings a flower, and he tells them all he knows of the flowers that Christ hallowed by name; so God's living gems become sacred in the child's memory, not to be plucked and cast away at a moment's whim.

The culture of plants in our crowded back slums and alleys would be most beneficial to the health, plants living on certain gases we exhale; and it seems impossible to conceive that a lover of flowers can be quite hardened in heart—there must be a soft spot where the arrow of religious conviction may penetrate if aimed by a skilful archer. The ministers of religion might do worse than foster window gardening in districts where they visit.

Many have doubtless heard of the 'Flower Mission.' Little bunches of flowers are made up by ladies' fingers and sent to hospitals, and I hope workhouses, and to many a leaflet is attached on which a short sentence of Scripture is written. I am told that the happiest results have ensued. Men and women whom the word of chaplain failed to soften, at the sight of a flower have 'given in' and wept! Days of past innocence and happiness crowded into their memories by the ministration of a homely wallflower, and the wandering soul has returned to the Father of all created things.

To those with gardens full of flowering shrubs and conservatories radiant with scented beauty, to the more homely garden-lover with borders full of wallflowers and lily of the valley, with walls burdened with monthly roses and honeysuckle, I say, give of your abundance to the sick in mind and body. Once a week during the bounteous flower season send to some hospital, workhouse, or infirmary a hamper of God's living gems. Be a member of the 'Flower Mission' in all its branches, in the window, the sick room, and to the aged pauper; nay, if, with the Bible, into the felon's cell a flower now and then finds its way, the strictest disciplinarian will surely not object.

TO KEEP FOREST TENT CATERPILLARS FROM TREES.

BY WM. SAUNDERS, LONDON. *From the Free Press.*

The Forest Tent Caterpillar (*clisiocampa sylvatica*), which was so very destructive to our gardens, orchards, and forests last year, seems likely to be almost as numerous and injurious again this season. The worms are now about an inch or more in length, and during the next ten days or fortnight will eat most voraciously, and their efforts, owing to their increased size, will be painfully apparent. There are many painstaking cultivators who are attentive to their trees, and destroy from time to time all the catepillars they can find on them, but who are perplexed and discouraged by the continued invasions they are subject to from the hosts of these hungry larvæ which swarm in neglected orchards and among the forests trees. This particular caterpillar is very fond of travelling, and its powers of locomotion are not to be despised, for in a few hours it can travel a very considerable distance, and, if it does not meet with suitable food, can maintain its activity on an empty stomach for several days. In consequence of this peculiarity, trees that are free from them to-day may be swarming to-morrow. To meet such cases I would suggest the following simple and inexpensive remedy, which has been tried and found to work admirably:—Take a roll of cotton batting, open it out and cut it into strips about three inches wide, and tie one of these strips tightly about the middle to any part of the trunk of the tree, so as to completely encircle it. In attempting to cross this barrier, the multitude of minute, horny hooks which fringe the extremities of the thick, fleshy feet of the catepillar become so entangled among the fibres of the cotton that further progress is impossible, and the hungry worm wishing to ascend, will be found walking disconsolately around and around the tree, looking in vain for some way over the difficult pass. As they have no other means of getting into the tree than that of crawling up it, when once the trees are cleaned, this harmless remedy is most effectual in keeping them so, and its use will result in a great saving of time and labor; even heavy rains do not impair the efficiency of this barrier.

When large trees are swarming with the caterpillars, as is the case in many orchards, such trees should be visited every morning, and the

larvæ, which are then congregated in masses on the trunks, destroyed, which may be readily done by the vigorous use of a common broom."

OUR HAWTHORNS.

The flowering Hawthorns are the attractive feature of the lawn after the early blooming shrubs have doffed their gay attire, and settled down to the more quiet hues that they will keep through the Summer. They are attractive indeed, arresting the attention of every passer-by, and drawing from all expressions of admiration and delight; not only because of their beauty, but on account also of the delicious fragrance which fills the air, and is carried for some distance by the winds.

The Single Scarlet variety is exceedingly showy and very fragrant, producing its flowers in great profusion, so that they quite hide the foliage. Early in the morning, and again just at evening, when the rays of the sun fall aslant, the trees of this variety are lit up with a peculiar glow that must be seen to be appreciated, words have no power to express the exceeding charm of their beauty.

In striking contrast, and yet blending harmoniously, heightening the beauty of the scene, is the Single White Thorn, the thorn of the English hedge-rows. Those who have been familiar with it in the days of their early home will need no description of it, the mere mention will bring visions of beauty and loveliness, and tender memories. The fragrant blossoms, wreathing the graceful branches as for a bridal, fill the air with sweet odours, and add new charms to the deepening hues of the other sisters.

With yet another beauty, not the free, fresh, unrestrained gracefulness of the single varieties, but in more stately style and with matronly air, the Double Flowering Thorns add their charm to the lovely group. These are of several shades, white, rich rose color, deep crimson, and bright carmine, each flower like a tiny rosette, and then grouped in clusters, set with a bordering of glossy emerald. These double flowers continue longer on the trees than the single, so that they retain their attractiveness for some time after the others have dropped their petals.

After many years trial of the Hawthorns the writer can only say that each returning year has left a deeper impression of the beauty and value of these large shrubs or small trees as ornaments for the lawn. They will certainly thrive well in a large part of Western Ontario, and deserve to be planted around every home in the land. What a charm

they would give to our country in Spring-time, filling the air with fragrance, and the landscape with indescribable beauty.

FRANCIS HANSFORD HORA.

It becomes our painful duty to announce the death of one of the Directors of the Association. Mr. Hora died at his residence Glen Lawrence, near Kingston, on Saturday, May 4th, 1878, of valvular disease of the heart. He was born at Harwich, Essex, England, 31st January, 1820.

His father was a surgeon in extensive practice in Bayswater, London, who intended his son for his own profession, and was greatly disappointed in finding him very much averse to it, his tastes and talent qualifying him, he felt, more for an artist's life. He was for some months in the studio of the late Daniel Webster, R.A., but an appointment being offered him in the Commissariat department of the Indian Navy, he gave up his favorite study and sailed for India, passing his 16th birthday at the Cape of Good Hope. When in India his pencil was not idle. His talent as a draughtsman was soon known, and he was transferred by the late Sir C. Malcolm, Superintendant, I. N., who took a great interest in him, to the surveying branch of the service. This life he enjoyed exceedingly. For three years he was employed in the active duties of the survey of the islands of the Indian Ocean, Red Sea, &c., &c. He was highly spoken of as a draughtsman, his charts were considered beautifully finished and were preserved in the East India House, London. While on this service he was able to cultivate his taste for natural history, and made a very fine collection of shells.

In 1841 he held an appointment in the civil branch of the service. Having to live in the dockyard at Bombay, he was attacked with fever, and after battling against it for 12 months, (from which time he dated the commencement of the heart disease of which he died,) he had to go to England on sick certificate. He returned to India for three years, but his health again broke down, and he was sent to Europe on medical furlough. On his return to London, 1849, he spent a great part of his time in the British Museum among its hidden treasures, enjoying the society of its curators Messrs. Grey, Doubleday, &c.

Dr. Baird, the conchologist, assisting him in classifying his fine collection of shells. He returned to India in 1851 and served through the Burmese war, which commenced soon after his arrival. Boat work in the rivers soon laid him up with fever; he had to leave his ship and live on shore. While an invalid at Rangrove he made a large collection of moths and butterflies. His health was so thoroughly shaken by the climate that he was not fit for active service, and in 1854 he returned to England and retired on half pay. His wife and family were then living in Wales. Here he was a most devoted and successful salmon fisher; with rod and sketch-book he spent days enjoying the lovely scenery of the beautiful Welsh rivers. His garden was a great delight, and with the enthusiasm of a true florist, he raised flowers of great beauty and perfection.

In 1866 he decided to emigrate to Canada, thinking there would there be a better opening in life for his sons. After he bought Glen Lawrence he turned his attention to fruit growing, and entered into it with all his constitutional enthusiasm, it became a perfect passion. He never was so happy as among his fruit trees and vines. When almost dying he spoke of them with tenderness, leaving them to the special care of his son.

To the Fruit Growers' Association, of which he was a member in 1871, he attributed much of his success in fruit growing. He always spoke of his connection with the society with great satisfaction and earnestness, for he thought that the information imparted by means of its reports would prove a blessing to those settling in Canada, and save them from the disappointments he had suffered in starting.

At the annual meeting, in London, in 1877, he was chosen to represent the third Agricultural Division on the board of Directors of the Fruit Growers' Association, which position he filled with great acceptance, constantly seeking to prêsent to his constituents the advantages it afforded to its members. Before his term had expired his seat has become vacant, but he leaves the memory of an unblemished character, both in public service and in private life. Thus we pass on, one after another, in the hope "that the culture, training and sorrows of earth shall culminate in the purity, perfection, and bliss of heaven,

> "Where Gilead's balm in its freshness shall flow,
> O'er the wounds which the pruning knife gave us below."

The Canadian Horticulturist.

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THREE POPULAR PLUMS.

The three varieties of plum that stand out conspicuously as favorites in the United States and Canada are the Imperial Gage, Jefferson and Lombard. The first and last named are recommended for general cultivation in twenty-two States and Provinces, and the other in twenty-one. The double star of superiority is given to the Imperial Gage in four widely separated States, to the Jefferson and the Lombard each in five.

The Imperial Gage is of American origin, having been raised from seed of the Green Gage, in Prince's nursery, at Flushing, on Long Island, in the State of New York. The fruit is of full medium size, oval in form, and when fully ripe is peculiarly marbled with green stripes on a yellowish-green ground and covered with a thick white bloom. The flesh has a greenish color, is very juicy and rich, ranking in quality as "best." It ripens during the first half of September. This plum is mentioned in the Reports of the Association as being cultivated in the counties of Brant, Carleton, Durham, Elgin, Frontenac, Grey, Glengarry, Halton, Huron, Lambton, Lincoln, Middlesex, Norfolk, Peel, Perth, Peterborough, Victoria, Waterloo, Welland, Wellington, Wentworth and York. In the the county of Victoria it is spoken of as being most productive and profitable for market.

The Jefferson plum was raised by the late Judge Buel, of Albany, in the State of New York. The tree is a moderate grower, but bears well and regularly. The fruit is large and showy, of a golden yellow color, with cheek of purplish-red, and thinly covered with white bloom. The flesh is of a rich orange, juicy, luscious, and very high flavored, quality "best." It ripens in the end of August or beginning of September. It is reported as being cultivated in the counties of Brant, Carleton, Durham, Elgin, Grey, Glengarry, Halton, Huron, Lincoln, Perth, Peterborough, Wellington and Wentworth.

The Lombard plum received this name from the Massachusetts Horticultural Society as a token of respect to Mr. Lombard, of Springfield, who brought it into notice in that State. It is generally believed to have been raised from seed by Judge Platt, of Whitesborough, New York. It is a very vigorous and healthy tree, adapting itself to almost every soil, and is immensely productive. The fruit is of medium size, of a delicate violet-red color, thinly overspread with bloom. The flesh is deep yellow, juicy, pleasant, but not high flavored. In quality it ranks only as "good." It ripens with us in the latter part of August. This variety has been widely disseminated throughout the Province, and is cultivated in nearly if not quite every county. In the counties of Brant, Bruce and Oxford it is reported as being the most productive of all the varieties cultivated, and the most esteemed for market purposes. In Carleton, Durham, Elgin, Grey, Halton, Huron, Lincoln, Middlesex, Northumberland, Ontario, Perth, Simcoe, Victoria, Waterloo, Welland, Wellington and Wentworth, it is mentioned as being among the most productive of the varieties grown. This plum is probably more generally planted than any other variety on account of the healthy character of the tree and its immense productiveness, by reason of which some fruit usually comes to maturity despite the ravages of the Curculio.

ADVICE ON FRUIT GROWING TO THE FARMERS.

The transactions of the Wisconsin State Horticultural Society for 1877-8, through the politeness of the secretary, F. W. Case, have just been received. The volume contains many very valuable papers, several of them written by ladies, among them is one with the above heading, so eminently practical and so appropriate to our own circumstances, that we give the substance of it to our readers. The writer, A. J. Philips, is evidently familiar with the subject, and gives his advice from the depths of his own experience. He says,

I advise every farmer, be he farming on a large or small scale, to make an effort to raise some fruit as a source of pleasure, and profit, and comfort to himself and family.

I advise the farmers to inform themselves on the varieties that are succeeding best in the sections in which they live, then on

the best mode of culture, and after this to buy their trees, and use their utmost endeavors to care for and protect them.

I advise you to be careful of whom you buy, for if you depend on the judgment of others to make your selections you will find that the men who can be fully relied on are scarce. Nurserymen are anxious to sell, and some will recommend a new variety for the sake of selling it without knowing whether it is suitable; the tree agents are wholly irresponsible, and are seeking only to make as many and large sales as possible. Last fall I met a man selling fruit trees, and notwithstanding the fact that the well informed fruit growers and the State Horticultural Society have repeatedly recommended for general cultivation nothing but the Duchess of Oldenburg and Wealthy in standard apples, and a few of the best crabs, still that man had orders for trees that he knew would not be successful in that rigorous climate, I solemnly looked him in the face and said, "You have a fearful amount of cheek to sell these trees to farmers?" "Well," he said, "I have the trees, and the only way to get out is to sell them."

I advise you whether you plant many or few trees, whether your soil and location be favorable or unfavorable, whether you bought the trees because you wanted them or to get rid of the agent, whenever you plant trees don't forget to mulch them the first season, and every season thereafter. They will be more certain to live and grow and to bear fruit, and you will be the better satisfied with the result.

I advise you, after taking all this pains, to see to it that cattle and horses and sheep are not turned in to destroy them. This is practised too much, and then the failure charged to climate and other causes.

I advise you to set young trees, for they will root more readily, grow more thriftily and bear earlier than older trees. Much has been lost, and many have become discouraged by planting five and six year old trees, for they never recovered from the shock received by transplanting. I have abundant evidence of this in my own orchard, and know whereof I write.

I advise you to avoid cheap trees for several reasons; first, they are likely to be poor stock, and second, if you get them for a small price you will not take as good care of them. High-priced horses, cattle and hogs always get the best care. A farmer last fall asked me what I thought of a trade he had made, he had traded an old fanning-mill that he had not been able to give away, for fifty apple trees, after

letting them stand out-doors one sharp frosty night, he had buried them for spring planting, I answered him, "you have made a trade that will be a damage to you, for with the careless treatment they have already received, no doubt many of them are dead now, and as they cost you nothing, you will not take care of them, and they will die of neglect." He replied, "I guess you are right."

I advise you to buy of a man who has some practical knowledge of varieties, soils and location. And buy of a man who has established a reputation for fair dealing. That course would decrease the quantity and improve the quality of this class of middlemen.

I advise you to subscribe for a good paper that devotes part of its columns to imparting horticultural knowledge; read it carefully, and when in your own experience you find anything that may be of interest for others, write it and send it to the paper for their benefit. Also pay one dollar every year to be a member of the State Horticultural Society—Fruit Growers' Association of Ontario—this will help the Society to disseminate suitable information to the public; you will then be entitled each year to a copy of the transactions, which contain valuable reading, well worth the dollar to yourselves and families.

WOMAN'S WORK IN HORTICULTURE.

BY MRS. H. M. LEWIS, MADISON, WISCONSIN.

From the transactions of the Wisconsin State Horticultural Society.

I wish to have it clearly understood that I am not an advocate of woman's rights in the full sense of the word, and I have no admiration for a manly woman, but I do advocate that woman has the right to do any and all things for herself and family that she can do with dignity, and without losing any of her womanly delicacy. I am sure that the great majority of women would not enter public life were its doors fully open to them; but I believe that the unmarried woman who pays taxes and has no protector, has the same right to the ballot box if she desires it, that the man has who uses her money for public benefit.

"The woman's cause is man's ; they rise or sink
Together, dwarfed or God-like, bond or free."

Half the human race are women, and the true woman, upon whom nature has set her seal of royalty, is now acknowledged to be the finest specimen of woman kind upon earth, and she is now fully awakening to her true interests, and great results must follow. Perhaps education and prejudice may retard her work, but the time is not distant when men will "fling around her conquering footsteps more lavish praises and perfumed flowers than ever wooed with intoxicating fragrance the fairest butterfly of the ball-room or opera."

No healthy woman, from Queen Victoria down to the beggar at the door, has a right to live with nothing to do. God never put a human being on earth to waste a life, or indeed a single hour.

"A creature out of work is beggary;
To Thee I come,
O King of Kings, find room and use for me
In Thy great home."

Time spent in healthful rest and recreation is a necessity, and of incalculable benefit to all workers, and they are the only ones who know how to enjoy it. I would that all women were pleasantly situated in homes of their own, but such is not the fact, for one-fifth of womankind must be self-supporting; and a question of great importance before us at present is, how shall we make our dependent, respectable women more healthy, respectable and self-sustaining? Many women, particularly widows with children, are feeling the necessity of having a more agreeable work, and their thoughts are taking a new turn. They are reaching out to new fields to claim, and conquer, and may God help them, is our prayer.

Medical statisties show us that the average healthy life of a woman running a sewing machine is but four years. To be sure, she lives beyond that time, but in most instances her life is but a dull blank, for she can do little but suffer. Many noble women are sitting down in sorrow and objectless grief, leading dull, indolent lives, nursing every ache and pain, who are dependent upon relatives for their support, upon whom they have no claim, because they feel that they can do nothing for themselves. To such and all others who feel in their hearts that they ought to have some work to do, we would say, take up the work of horticulture, if you have a natural love for it; if not, do not attempt it, for you will most likely fail. But if you love it so well that you can identify your life with it, you cannot fail

of success. Some women have a natural talent for fruit growing and market gardening. Both fields are open to women, and some of the very best conducted farms in the west are managed by them. One lady in the south, who was formerly worth a million dollars, is now supporting herself finely by the cultivation of the castor oil bean; others are supporting themselves by cultivating nuts and various kinds of herbs. A fair degree of health is warranted to most women in the horticultural work, for many physicians prescribe digging in the earth and out-door exercise for the cure of consumption, dyspepsia, and all nervous diseases.

The majority of women have a natural love for flowers, and find but little trouble in cultivating them successfully for their own pleasure, and I see no reason why they should not succeed as professional florists, as the art has now become so simplified that they will be enabled, after becoming fairly established and giving to it a few months careful study and experience, to succeed, if they have a natural bent in that direction. If a woman succeeds as a florist, she can do what she cannot in many other fields; she can command the same price for her produce that a man can, and that is most encouraging. If a woman wishes to engage in this business, perhaps it would be the better way to begin carefully, learning by experience, step by step; doing a small business at first, saying in the meantime to her friends that she expects them to patronize her liberally, and she will surely get the patronage if she works in the right way, as the demand for flowers and vines is largely on the increase; so much so, that no home is considered furnished without them.

But few women have as yet taken up floriculture as a business in the west, but in the east many are engaged in it, and not a few have secured fortunes from its profits. One of the most refined ladies we ever knew was a florist. She managed, with the assistance of a young German lad, three good sized green houses. The man did the coarse, heavy work, lifting heavy burdens, making fires, marketing the plants, etc., while she used the brain force to keep everything in fine running order, taking upon herself the personal supervision of each house. One house was kept for the hardy plants, just above the freezing point. In this was found varieties of roses, pansies, dasies, sweet alyssum and many others for daily cutting. The second house was kept at about 60°. The third at tropical heat. She bore the responsibility of buying,

selling, shipping, slipping, repotting and preparing plants and boquets for market. She often re-potted three hundred plants in a day with her own hands, and when evening came, was the life of a charmed circle, who admired her for the beauty of her cultivated mind, fine musical talents, and kind, loving heart. She entered upon her work with the greatest love and enthusiasm for it. Often when she was admiring nature's wealth and varieties of colors, and breathing the very odors of Heaven, she would exclaim, "You little know what beautiful thoughts come to me out of the ground, as I study the fathomless mysteries of plant life." Her work was not all toil; it was truly an inspiration. Women so happily and healthfully employed are seldom sick. One such woman worker is doing more for the woman's cause than a score of Susan Anthonys. We are proud of such women, and we have thousands of them all around us. Mrs. Little, of the blind asylum, Mrs. Harvey of hospital fame, and Mrs. Lynde, who has done so much to relieve suffering in our poor-houses and jails, are representatives of this type of women in our own State, and our good President Hayes' wife, of national fame, whose bright light shines over the whole world, is proving that the "present epoch is initiating an empire of the higher reason of arts, affections, aspirations, and for that epoch the genius of woman has been reserved," proving the old Oriental proverb, "that every book of knowledge is implanted by nature in the heart of woman," to be true; scattering to the winds the pernicious and absurd saying of Voltaire, that "ideas were like beards; women and young men have none."

Woman is emerging from the gloom of the dark ages into glorious light. She is like the famished plant in the gardener's hand. It seemingly droops and withers without hope, but when he gives it the elements of growth, rich soil, dew, rain and God's sunshine, it expands into a plant that sends out its beautiful foliage and rich blossoms, that will fill the air with fragrance and beauty, and the "world's autumn" with rich fruit.

Horticulture promotes health, furnishes appetizing and invigorating food, is a most delightful means of recreation, cultivates a refined taste, induces a spirit of cheerfulness, and awakens a sympathy with nature and a love for all the Creator's works.

SOME RELATIONS BETWEEN PLANTS AND INSECTS.

BY JOHN ELKINGTON, M.D., OMPAH, ONT.

Sir Jno. Lubbock, F.R.S., lately delivered a most interesting lecture on the above subject, in Leeds, England, some portions of which have a special interest to the hybridist; and though it is not possible in these pages to reproduce the whole discourse, I have thought a selection from the report in the English *Agricultural Gazette* might give profitable food for thought to readers of the CANDIAN HORTICULTURIST.

The lecturer alluded to the difference existing in plants, not only differences in form, size and color, but also in other respects, some being hairy, glutinous, sticky, &c. These may be accounted for in a great measure by the relations borne by plants to insects, the visits of which are generally necessary to ensure the fertilization of one flower by the pollen of the other. In some cases, however, such as that of *Drosera*, the object of the flower is to attract insects for the purpose of devouring them, and therefore the leaves are covered with sticky hairs, which bend gradually forward when an insect alights on the leaf, and squeezes it slowly to death, its juices going to the nourishment of its alluring and deceitful foe.

It is easy to see the advantage which flowers gain from secreting honey, inasmuch as they are dependent for fertilization on the visits of bees and other insects, which while feeding necessarily dust themselves with pollen, and thus carry it from flower to flower. But it is less easy to understand why honey should be secreted on those parts of flowers where no pollen exists, at the base of the leaf-stalks, for instance. For the explanation of this we are indebted to Mr. Bell, and Mr. Delphine, who observed that in some cases upon the stems, and living upon the honey, exist colonies of small ants, constituting a most efficient body-guard against the attacks of leaf-cutting ants. They also protect plants from the attacks of many other enemies, and are in their turn made use of by various small species of Aphides who, by secreting a sweet fluid, of which they allow the ants to avail themselves, convert them from enemies into friends and thereby secure a cordial, instead of an angry reception.

Harmless, however, and even useful as are ants which confining themselves only to the stalks of flowering plants, they would generally

be positively injurious to the flowers themselves, as these would merely rob them of their honey without repaying the debt by carrying the pollen to others. Flowers therefore have been driven to protect themselves by various devices, such as slippery surface, sticky glands or hedges of hairs, which entirely prevent the ants from obtaining access to the nectary. For the visits of ants to flowers would not only deprive them of their honey, but would prevent the visits of those insects which are so necessary to cross-fertilization. The instance of the mode in which the common Fox-glove excludes the entrance of ants was given; the flower is a close box, which contains the anthers, pistil and honey. It has the specialties of a flower which is adapted for cross-fertilization by insects, color, honey, and the arrangement of stamens and pistils, but it is closed. The flower is adapted to cross-fertilization by humble-bees, and they alone can force open the box; to other insects it is closed. Again, the beautiful rosy flowers of the *Polygonum Amphibium* are rich in nectar, and quite unprotected from the visits of creeping insects so long as the plant is grown in water; the arrangement of the stamens and pistils is such that it cannot fail of cross-fertilization on the visit of any flying insect. When, however, this plant is grown on land, and consequently liable to the visits of creeping things, certain hairs terminating in sticky glands are thrown out, effectively barring the entrance of these worse than useless guests. The so called "sleep" of plants is another means of self-defence adopted by those flowers whose fertilization is dependent upon the visits of day insects; while on the other hand there are other species of flowers adapted for moths and nocturnal insects, which expand towards night, and scent the evening air with delicious perfume. The curious life history of Silene Nutans was then referred to, and the advantages of early rising shown in those flowers which expand early in the morning to receive bees, but close again before the later rising ants are astir.

Sir John proceeded to discuss the means by which insects provide themselves with means of concealment, by imitating the appearance of plants; the "walking stick" insect, and many larvæ are cases in point. Some caterpillars, living on the under side of leaves, not only adapted their color to those leaves, but actually, as their growth increased, altered their markings so as to coincide with the fibres of the leaves. Curiously enough, sometimes bright and striking colors were used as a

mode of protection. In these cases, however, they are accompanied by an unpleasant smell and taste, so that the gorgeous dress which would seem so dangerous is in fact a most effectual shield.

The lecturer pointed out that there were five principal types of coloring among caterpillars. Those which live inside wood or leaves or underground are generally of a pale uniform hue; the small leaf-eating caterpillars are green, like the leaves on which they feed. The other three types may "*si parva licet componere magnis*" be compared with the three types of coloring among cats; there are the ground cats, as the lion and puma, which are brownish or sand color, like the open places they frequent; so also, caterpillars which conceal themselves by day at the roots of their plant food, even if originally green, tend to assume the color of earth. The spotted or eyed cats, such as the leopard, live among trees, and their peculiar color renders them inconspicuous, by mimicking the spots of light and shade among the foliage. Lastly, there are the striped cats, as the tiger, which inhabit the jungle, whose markings render them difficult to see among the brown grass they frequent. The stripes of the tiger are transverse because he walks horizontally on the ground; while the stripes on the caterpillar are either longitudinal or oblique, the direction of the lines follows those of the foliage; those caterpillars which cling to the grass in a vertical position have longitudinal lines, while those which live on mere leaves have oblique lines, corresponding with the oblique midribs of the leaves.

THE BLACKBERRY.

This fruit has received the least attention at the hands of fruit growers of any of our small fruits. Plants are seldom inquired for, and only a few hundreds are planted, where thousands of currants, raspberries, and gooseberries, and millions of strawberries are set out. Mr. Parry, of New Jersey, is an extensive cultivator of small fruits, and for many years boasted a large number of acres of blackberries under cultivation, and may therefore be considered good authority on the cultivation of this fruit. In a paper read before the Pennsylvania Fruit Growers' Society, at its meeting in January, 1877, he states that this fruit has sold readily in his markets at from twelve and a half to fifteen cents per quart. The average received by him during the past

fourteen years is fourteen cents per quart, and the yield two thousand two hundred quarts per acre.

The varieties to which he gives the preference are Wilson's Early, Dorchester, Kittatinny, and New Rochelle. The Hoosac Thornless he finds to have no other merit than its freedom from thorns; and the Crystal White, Col. Wilder, and Dr. Warder, with all white, red, and purple blackberries, prove to be unprofitable. Sable Queen, Sinclair, Holcomb, Cumberland, and many other varities have been tested and found not to be as valuable as the four sorts above named. He has found the Snyder to be remarkably hardy and very productive, qualities which make it very valuable in many localities, because it can be relied upon to produce a full crop, but the fruit is smaller. Clarkson's Early promises to compete successfully with Wilson's Early, ripening as soon, and very productive, with fruit of fair size. The Delaware is a very large and excellent blackberry, ripening at the same time with the Kittatinny, and the bush a very vigorous grower, and seemingly perfectly hardy.

The blackberry should not be planted on very rich soil, lest the result prove to be a large growth of canes and very little fruit. After experimenting with many soils, from a firm clay to a light blowing sand, Mr. Parry gives the preference to a light moist sandy loam, and if water would otherwise stand near the surface that which has been thoroughly underdrained. He states that a fruit grower who had forty acres devoted to the growing of blackberries bought a tract of light sandy land at thirteen dollars per acre, and planted it with them; but in order to have a model patch he purchased a few acres of the best and richest land in the vicinity, at three hundred dollars per acre, and planted it with the same kind of blackberries, gave it the best of care, obtained an immense growth of canes; but never as much fruit as from the cheaper land.

He highly recommends the practice of heading back the canes, during the summer, to a height of from three to five feet, which will cause the side branches to grow vigorously, and interlocking with each other, enable the bushes to support themselves without stakes or wires. These side branches should be shortened during the following spring, so as to give the bushes a pyramidal form. The result of this pruning has been a greater yield of fruit, and of better quality than when he had allowed the bushes to go unpruned. The unpruned bushes would

set a greater number of berries, but could not ripen them. The best and earliest fruit was upon the well pruned bushes.

A plantation set with plants propagated from cuttings of healthy young roots will continue to yield good crops from twelve to fifteen years. Mr. Parry says that he planted ten acres on this sandy land which bore good crops of berries for thirteen years, yielding several seasons six hundred and fifty bushels and once eight hundred bushels of fruit.

THE GRAPE VINE FLEA BEETLE, *Haltica Chalybea.*

BY W. SAUNDERS, LONDON.

In No. 4, page 62, of the *Horticulturist,* a correspondent complains of the ravages of the Grape Vine Flea Beetle. This insect has been unusually abundant in many localities this season, and where abundant is always very destructive to the grape vines. Its common name suggests activity, and it is as active in mischief as in movement, hopping during the heat of the day from leaf to leaf and from branch to branch with a speed almost equal to that of its smaller namesake.

FIG. 9.

The Beetle, Fig 9, survives the winter in the perfect state, lying dormant and torpid under leaves, pieces of bark, or other suitable shelter until called into activity by the reviving warmth of spring. It is a pretty little beetle of a polished steel-blue or green color, sometimes shading into purplish, with a transverse depression across the hinder part of the thorax. The under side is dark green, the antennæ and feet brownish black. Its length is about three-twentieths of an inch, and it has stout robust thighs, by means of which it is able to jump about very briskly. It is more destructive in spring than at any other time, for then before the buds have burst it is astir, with appetite the keener for its long winter fast; and while the tender growth is swelling, this little mischief-maker pounces on it and eats it out to its centre, thus consuming in a short time two or three embryo bunches of grapes.

The beetles appear on the vines in the latter part of April and continue to be destructive until late in May, after which they gradually disappear. Before leaving, however, they deposit clusters of orange colored eggs on the under side of the young vine-leaves which hatch

in a few days into small dark-brown worms, which feed on the upper side of the leaves, eating numberless holes in the softer parts, in the manner shown in Fig. 10. In about three or four weeks they become full grown, when they present the appearance shown at *b*, in the Fig.; but here is a magnified view; the hair-line at the side shows the correct size. They are then about three-tenths of an inch long, usually of a light brown color above, sometimes yellowish, at other times of a darker shade, paler on the under surface. The head is black, and there are six or eight shining black dots on each of the other segments of the body, each emitting a single brownish hair. The feet, six in number, are black, and there is a fleshy orange colored proleg on the terminal segment. When progressing, the larvæ does not move its body regularly, but raises it suddenly behind.

Fig. 10.

In the early part of June they leave the vines and descend to the ground, where they burrow in the earth, and forming a little smooth oval cell, change to dark yellowish chrysalids, as shown at *c*, Fig. 10. After remaining about two or three weeks in this state, the perfect beetles issue from them, and the work of destruction still goes on; but as they live altogether on leaves during the fall, of which there is usually an abundance, the injury they do at that season is scarcely noticed.

To destroy the beetle it is recommended to strew in the fall, air-slacked lime, or a good quantity of unleached ashes around the vines infested. The larvæ may be destroyed by the use of hellebore and water, or where it can be safely used, a mixture of paris-green and water, in the proportion of one or two teaspoonfuls to a pail of water. This latter mixture would also doubtless kill the beetles if the vines were well syringed with it in spring. During the chilly mornings of early spring the beetles are comparatively sluggish and inactive, and some

chance is then afforded of hand-picking and destroying them. Fowls allowed at this time the run of the vineyard are also said to devour large numbers of them.

HOW TO PROPAGATE FLOWERING SHRUBS.

An esteemed member of the Association requests that information may be given on this subject, being desirous of enjoying the pleasure of having flowering shrubs in his grounds, and finding that it is only occasionally that he can succeed in raising those received from the nurseries. In compliance with this request we give the usual methods of propagating some of our most desirable hardy shrubs, in the hope that the information here given may prove both interesting and profitable to many of our readers.

The *Japan Quince* is one of our shrubs that is very easily propagated by layers, cuttings of the roots, and seeds. The branches should be cut with a tongue, as is usually done in layering, and layered sufficiently deep to be kept moist through the summer, and remain in the ground until the next spring, by which time they will be found to be rooted, when they can be cut loose from the parent shrub and set out as independent plants. The proper time to put down the layers is in spring, as soon as the soil has become somewhat warmed and settled, and before the leaves put forth. It may also be propagated from root cuttings. In order to grow them in this way successfully, it is desirable to prepare a hot-bed sufficiently large to insure a durable, gentle bottom heat. When this has been secured the bed should be covered with about four inches of good, rich, sandy loam, the roots of the shrub cut into pieces about four inches in length, should be thrust into the soil at an oblique angle, so as to be covered about half an inch deep at the upper end, and three inches deep at the lower end, then gently watered with a fine rose, so as to settle the soil well about the cuttings, and the sash kept on day and night until the sprouts have made their appearance above ground, when they should be treated as to heat, air, and moisture in the same way as any tender growth. Care must be taken with the watering before the shoots appear, not to apply so much at any time as to materially reduce the temperature of the soil, or to make it at all sodden. As the young plants increase in strength they should be gradually hardened off, and by mid-summer be enabled to endure the

weather without any covering by night or day. They can be taken out of the frame in the fall, and stored in earth in a box in the cellar, and set out the next spring in the open ground. They can also be raised from seed, although there will be more or less variation in the color of the flowers of the seedling plants from that of the parent. The seed should be sown in the fall, in shallow drills, and covered but slightly. In the spring it will germinate, and the young seedlings will require the same care in weeding and cleaning and stirring the soil as a bed of carrots. In the fall they should be taken up, packed in earth, and stored in the cellar until spring, when they should be set out about six inches apart in rows, and cultivated and cared for until large enough to be set in their permanent place on the lawn.

The *Plum-leaved Spirea* is somewhat more difficult of propagation, though it will root tolerably well from layers, tongued and put down in the usual manner of layering. But the best way to propagate it is from cuttings of the green wood in summer. The most successful plan is to plant the shrub in a box or tub, place it in the greenhouse in February, and gently force it into growth. When the young shoots have begun to harden, they should be taken out and set in pure sand in the propagating bed, over a gentle but steady bottom heat. Here they will soon strike, and when the roots have been well developed may be potted off into small pots and treated like any young, tender, newly potted plant. They may also be grown in the summer from cuttings taken from the shrub in the open ground, and set in sand over a hot-bed having a gentle bottom heat, covered with sash and shaded so as to exclude the sun. Considerable skill and attention are requisite to success in this method of propagation; there is danger on every hand, danger from too much moisture, and danger from too little moisture, danger from keeping the sash shut too close, and danger from admitting too much air, the bottom heat may be too great, or it may be too little, the cuttings may be taken too green, or they may have become too much hardened.

The *Chinese Double-flowering Plum* is propagated by grafting or budding on stocks of the common plum. It is possible that it might be made to grow from cuttings in bottom heat, but we have never tried that method, the process of budding it upon the plum stock being much more convenient, expeditious, and economical.

The *Purple-leaved Filbert* is propagated by layering. We have

found that in dry and hot seasons the layers do not root freely, and that it is often necessary to allow the layers to remain for two years before separating them from the parent plant.

The *Flowering Hawthorns* are best and easiest propagated by budding them upon the common White Hawthorn. The buds take readily, unite firmly, and grow rapidly. We have not tried the experiment of budding or grafting these upon our common Wild Thorn; if any of our readers have made trial of this method of propagating them, it would be very interesting to know the result.

Deutzia Gracilis, a small, slender, graceful shrub, producing pure white, bell-shaped flowers in great profusion, is best propagated also by placing a plant in the greenhouse, and setting green wood cuttings in bottom heat, under a bell-glass; though it is quite possible to succeed when the bell-glass is not used.

Deutzia Crenata flore pleno, comes into bloom towards the end of June. It is the most showy of all the Deutzias, bearing its hanging bell-shaped, scolloped blossoms on the shoots of the current season's growth, throughout the entire length of the shoot. The flowers are very double, pure white, splashed with bright rosy pink on the outside, and literally cover the branches so as nearly to conceal the foliage. This we have cultivated only from green wood cuttings taken from the parent plant in summer and set in a gentle bottom heat. We believe however that it might be grown from hard wood cuttings taken off in the fall and kept in moist sand until March, and then set in the propagating bed of a greenhouse with a gentle bottom heat, and also that it might be possible to grow it from layers in the open ground.

The *Syringa,* or Mock Orange, is very readily grown from layers; from suckers that spring up around the parent plant; and by dividing the parent plant itself when it has attained to sufficient size.

Weigela Rosea, a free flowering shrub, with showy, tubular flowers, of a light rose color, blooming in June, is very easily propagated from cuttings, in a gentle bottom heat, or even under a sash without bottom heat, in sand; also by layering.

Perhaps these instances will be sufficient to give our readers an idea of the varions methods of propagating shrubs. As a rule most of them can be made to grow from layers, keeping them layered two years if necessary; when this method fails, resort must be had to green wood cuttings and bottom heat.

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ROSES.

In the very midst of the wealth of bloom with which we are surrounded, the scent of the roses wafted to us on every passing breeze. it seems exceedingly appropriate to enjoy a little talk with our readers about roses. There is no need to tell of their beauty. Acknowledged to be the queen of the flowers, the rose holds a position of pre-eminence that requires no words of praise from us to establish; ours shall be the humbler task to tell her admirers how best to care for their favorite, so that she may be able to put on her royal apparel, and come forth in all her loveliness.

There is required for the growing of roses in their perfection a something that is not to be found in books. "Poets are born, not made" it is said, and there is somewhat of the same truth in this matter of growing roses. The perfection of the art is the outcome of a devotion that ever burns but never consumes. Deep down in the secret chambers of the heart it is continually glowing, and when to other eyes the rose is no longer a thing of beauty, in the days of the "sere and yellow leaf," it waits tenderly and lovingly upon the object of its devotion. To such care she most generously responds, arraying herself in gorgeous beauty, putting on her most lovely tints and beaming with most bewitching smiles.

We have some obstacles to overcome in the cultivation of the rose which are quite unknown to her devotees in England. Our mid-summer suns are so scorchingly hot that our roses soon lose the richness of their fresh tints. To enjoy the full beauty of the rose, to see it in the freshness of its coloring, while the delicacy of the tints is yet unimpaired, one should stroll through the rose grounds at sunrise, before the dew-drops are exhaled, and see the flowers unfolding to the morning light. Could we shade our roses from about ten o'clock of the morning until four in the afternoon, the lustre of their beauty

would be preserved much longer. But that is almost an impossibility in our latitude, where the sun at mid-day is so nearly vertical. The best thing we can do is to cover the ground over their roots with a thick mulch, so as to keep it moist and cool. Again, the severity of our winters is very trying to our rose trees. Usually the shoots are more or less killed back, so that they require to be cut down in spring almost or quite to the ground. Some protection can be given to them by sticking evergreen boughs around them, so as to hide the rose trees from sight during the winter, while other kinds that are tenderer must be taken up in the fall and heeled-in in the cellar, where they will not be exposed to much frost. Yet, notwithstanding all these difficulties, we can grow roses of great beauty, and that too in the full blaze of our vertical sun, and fully exposed to the severity of our winter frosts.

It is very desirable to have a strong soil in which to grow roses, a rich clayey loam is the very best. And this should be well enriched every year, indeed there seems no danger of making it too rich. An excellent fertilizer is made by composting sods from an old pasture with barnyard manure in about equal quantities. And the ground should be well drained, not merely on the surface, but the sub-soil, if tenacious and wet, should be thoroughly relieved of all surplus water by means of sub-soil drains, having a good outlet, so as to carry off the water rapidly and fully. Nevertheless, where clay loam soil cannot be conveniently had, cultivation and liberal fertilizing will largely compensate for its absence, indeed some of the finest roses have been grown on a sandy loam which had been stirred to a good depth and liberally supplied with compost, the best of all composts that of the farm-yard, where the sweepings from the stable are mingled with the litter of the bedding, and thrown out to be trampled by the cattle, and worked over by the pigs.

The planting may be done either in the fall or spring, as may be most convenient; and whatever time it may be done, after it is completed, the surface should be deeply mulched with a heavy covering of strawy manure, thick enough to keep the ground cool and moist in the hot days of summer, or to keep out the frost in the cold winter nights. If the trees are on their own roots, that is, have not been budded nor grafted, they should be planted so as to stand at the same depth in the ground as before, when the soil has become settled. But if they have been grafted or budded upon another stock, the rose trees should be

planted deep enough to bring the point of union two or three inches below the surface. This is desirable for several reasons, but especially that in case the plant is killed back by unusually severe frosts quite to the ground the tree might not be wholly lost, which would be the case if the point of union with the stock be above the ground; for though sprouts might come up from the stock, the roses that would appear would not be the roses desired; whereas, if the union be a few inches below the surface, there is a possibility that a sprout may be thrown up from the part above the union, and thus the desired variety preserved.

In pruning roses, attention must be given to the habit of the variety. Those of a very vigorous habit should be moderately pruned, for if they are severely cut back they will make a large growth of wood, and give but little bloom. But those which naturally grow feebly should be cut back more severely, so that the supply of sap may be sufficient to make the flower-buds that are left grow vigorously, and the roses to be fully developed. The form best suited to our climate is that of a low bush, for the cold of our winters and the heat of our summers bear very injuriously upon tall standards or tree roses. For this reason it is a waste of money to buy these tree roses and weeping roses which are sold through the country at from three to five dollars each. They are produced by grafting upon tall stems of the Dog-rose, but in two or three years, at best, they succumb to the peculiar extremes of our climate. The so-called Weeping roses, are made by grafting some slender growing variety, sometimes two or three sorts of different colors, upon tall Dog-roses, and frequently the sorts that are grafted upon them are tender varieties, wholly unable to endure our winters; and if they live through the first summer are sure to perish during the first winter, unless carefully housed on the approach of winter.

The rose has also some insect enemies that will require to be watched and treated according to their works. One of the most annoying and injurious is the Rose-slug. It is a small light-green shiny creature that eats the soft green portions of the leaves, so that they have almost the appearance of having been skeletonized, making the rose-bush look brown and very unsightly. The Slug usually makes it appearance as the roses are beginning to bloom, preying first upon the more concealed leaves near the ground, and ascending as its food is exhausted to the higher branches; and as the number is usually very great, in a short time the leaves are all destroyed. The writer

has found white hellebore, applied by putting a large table-spoonful into a pail of water, and sprinkling the rose bushes with the water by means of an ordinary watering can, a sure means of destroying them. It is perhaps a better plan to stir a handful of the hellebore into a pail of water and allow it to stand over night until the next evening, and then stir it up thoroughly and add about a pint of the mixture to a pailful of water, and with this sprinkle the rose bushes. It is a very cheap and easy way of getting rid of the Slugs. In some seasons the Green-fly or Aphis are very abundant, covering the ends of the shoots, and sucking out the juices. These are easily destroyed by dipping the ends of the shoots in a strong decoction of tobacco, or by sprinkling the plants, if very badly infested with them, with the tobacco water through a watering can. But a more determined and obstinate insect pest than either of these is the Rose-leaf-hopper, insignificantly small in size, yet making up by infinitude of numbers for all lack of individual magnitude. Entomologists call these little scamps *Tettigonia rosae*. They are, when full grown, not more than three-twentieths of an inch long, the body is of a yellowish-white color, the wing-covers and wings are white, and the eyes, claws, and piercer, brown. They begin to hatch out about the middle of June, and appear upon the under side of the leaves without wings, but with an exceedingly sharp piercer or proboscis with which they pierce the skin of the leaf and feed upon the juices. This operation they keep up, increasing in size, casting their skins when their jacket becomes too tight for them, and sucking the juices out of the leaf all the more vigorously as they grow larger, until it assumes a pale sickly appearance, and no longer is able to perform its proper functions. The cast off skins of these insects may be found in great numbers adhering to the under side of the leaves, and likewise the little creatures themselves, manifesting their vitality by hopping about with great agility. Their hind legs are made somewhat like those of a grasshopper, which enable them to leap very briskly. After a time their wings appear, and then they seem to be more active than ever, and spread about till they find every rose bush in the garden. The writer has had considerable experience in fighting these little pests, but cannot say that he has succeeded in winning any great victories. Sprinkling the bushes with hellebore and water or with tobacco water from a watering can, is a useless expenditure of labor, for the little hoppers have only to keep their place on the underside

of the leaf and use it as an umbrella to shield themselves completely from the shower. The only way of reaching them is with a garden syringe. At one time it seemed as though the hellebore in water applied to them in this way, when they were quite young, was effectual in killing them, but later experiments have suggested the question whether they were not washed off by the force of the shower thus directed against them, and were unable in that early stage of life to find their way back again. If the latter be the correct solution, there need be neither hellebore nor tobacco in the water. The Rose-bug, *macrodactylus subspinosa*, feeds on the leaves, and when numerous are very destructive. Thus far the writer has never been troubled with this insect. They pass the larvæ state in the ground, and come out in the month of June as perfect beetles, remaining about a month to carry on their destructive work. The only certain method of combatting them, known to the writer, is that of gathering them by hand and crushing, burning, or scalding them. They are perfectly proof against whale-oil-soap and decoctions of tobacco; whether they can digest hellebore is not known, but probably they would succumb to paris-green. Should they not appear in too great numbers it would not be a difficult task to pick them off by hand, for they are very sluggish creatures, and easily caught.

Having given these hints on the cultivation of roses and the means of preventing the ravages of these insect enemies, we have but a few words to say concerning the different varieties. These all naturally fall under four heads, the summer, autumnal, climbing, and monthly roses. By summer, is meant those hardy kinds which bloom in the early summer only; the autumnal sorts not only bloom in the early summer, but also again more or less in the autumn. These are also called Hybrid Perpetuals, and Remontants. They are indeed hybrids, but the term perpetual is only calculated to mislead, for they do not bloom perpetually, and many of them give but few autumn flowers.

By climbing, is meant those hardy, free-growing, rambling varieties which can be trained to climb over a trellis or cover the side of the house or verandah. It is not intended to embrace those tender climbers, such as climbing Devoniensis or Marechal Niel, which can be grown only in the house, and are grouped under the head of monthly roses, which includes those known as Bourbon, Tea, and China Roses, which bloom almost constantly during their growing season.

It is not proposed to give anything like an exhaustive list of the roses which are classed under these different heads, that would be wearisome, but only to name a few of those which have been well tested and are likely to become favorites in every rose garden. Of the summer sorts we name first of all one that is probably well known to every one of our readers, one that has been the companion of our childhood's happiest hours, and fraught with many, many memories, the CABBAGE ROSE. It is yet one of our very prettiest roses, double to the perfection of fulness, and its petals suffused with blushes. Very like this, only with an added beauty, is the

COMMON MOSS ROSE, which is believed to be a sport from the old Cabbage Rose. A German writer has ventured to tell us how it happened:

The angel of the flowers one day
Beneath a rose-tree sleeping lay;
Awakening from his light repose,
The angel wispered to the rose;
'Oh fondest object of my care,
Still fairest found where all are fair,
For the sweet shade thou'st given me,
Ask what thou wilt, 'tis granted thee.'
'Then,' saith the rose, with deepened glow,
'On me another grace bestow.'
The spirit paused in silent thought,
What grace was there that flower had not?
'Twas but a moment; o'er the rose
A veil of moss the angel throws;
And robed in nature's simplest weed,
Could there a flower that rose exceed?

There is another variety of this which is known as the

CRESTED MOSS ROSE. The calyx is most beautifully edged with a mossy fringe, which gives to the buds a very attractive appearance.

MADAM PLANTIER is the best white, a most abundant bloomer, and very hardy.

PERSIAN YELLOW is the richest and most desirable, as it is the most double of the yellow roses.

KEAN is a magnificant, rich, velvety purple, with scarlet centre, making a most delightful contrast with the light-coloured roses.

In the autumnal class there is an almost endless list of names, and every year more are added, some of which are no improvement on those we already have. The few names that are given comprise some

of the most desirable that thrive well in our climate. It should be borne in mind that the autumnal display can be considerably increased by cutting off half of the summer bloom as soon as the buds appear, and when the flowers that are suffered to remain have faded, cut back the shoots to three or four buds, so as to throw the plant into a vigorous new growth.

Boule de Neige, a beautiful pure white that also blooms freely in the autumn.

Madame Alfred de Rougemont is white delicately shaded with rose, a most charming flower, also blooming well in autumn.

Duke of Edinburgh is a brilliant scarlet crimson, shaded with maroon, large and full; a most gorgeous flower.

Fisher Holmes, reddish scarlet, shaded with deep velvety crimson, large and very brilliant.

Lord Macauley, a rich clouded crimson, large and full, with petals of great substance.

Le Rhone is dark vermillion, very rich and brilliant, one of the very best.

Souvenir de William Wood is a very dark maroon, shaded with scarlet; a large and showy flower, and blooms well in autumn.

Xavier Olibo is velvety black, shaded with amaranth, blooms freely in the fall, and is one of the best.

Madame la Baronne de Rothschild is most magnificent; the color is a clear rose, shaded with white, the petals are of a shell-like substance, and each flower of great size.

Madame Fillion is another large, finely formed flower, of a salmon rose color, one of the best.

Madame Rival has a beautiful clear satin rose color, of large size, most handsomely cupped, and blooms well in the fall.

Madam Marie Cirodde, has a large and handsomely imbricated flower, of a most beautiful rosy-pink color, and is certainly one of the best.

John Hopper is a very attractive flower, large and full, of a clear rosy crimson deeping in color at the centre.

Comtesse de Chabrilliant is handsomely cupped, the color is a bright pink, and it is richly perfumed.

Mademoiselle Annie Wood blooms very abundantly in autumn, and is a large flower of a fine, clear red color.

Duchesse de Vallambrosa, when it first opens is of a light peach-blow color, but gradually changes to pure white, the flowers are large and globular in form.

Madame Lacharme is another beautifully clear wax-like flower, white, with a light blush in the centre.

Triomph de France is an extra large flower of perfect form and of a beautiful, bright rosy carmine.

These eighteen by no means exhaust the list of beautiful remontant roses, but they are sufficient to give some idea of their great beauty, variety and richness of coloring. Our climate will not admit of the use of any but the most hardy of the climbing roses. There is something indeed very enjoyable in a climate that will admit of festooning the verandas with climbing Devoniensis, or that glory of yellow roses, Marechal Niel; but we must content ourselves with those that will bear severer cold, and though lacking in perfume are by no means wanting in beauty.

Queen of the Prairies is probably the best of the hardy climbers; color bright rosy-red, globular in form and somewhat cupped, of good size, and produced in great profusion.

Baltimore Belle is a most delicately beautiful flower, white, suffused with a soft blush, quite double, and borne in very full clusters.

Gem of the Prairies proves to be quite hardy, the flowers are large, perfectly double and fragrant, though not in a high a degree, color a light crimson.

The Ayrshire Family is not so hardy, yet may be used to run over a bank, or upon the ground, where they will be protected by the snow.

The Queen of the Belgians is the best of this class, a pure white rose, flourishing even in a poor soil.

The Monthly Roses are too tender to bear the cold of our winters. They can be planted out in the summer, but must be taken up in autumn, and either potted and kept in the window, or the roots may be buried in earth in a cool cellar, and the plants kept there until spring. They bloom almost continuously, and it has been by crossing with these that our autumn blooming section has been obtained. We name a few of these that have been thoroughly tested, and are general favorites.

Gloire de Dijon is a very beautiful tea-scented flower, yellow, shaded with salmon, very large and full.

MARECHAL NIEL blooms best when it is allowed to ramble; it makes a splendid green-house climber, and is the best deep yellow rose, very large and full, and delightfully scented.

SOUVENIR D'UNI AMI is a favorite flower, rose color, shaded with deep salmon, large and full, excellent for pot culture.

CHESHUNT HYBRID proves to be a large, cherry-carmine rose, very beautiful in bud, and the plant a strong grower.

HERMOSA is a valuable light pink, a most profuse and constant bloomer.

Those who wish extended collections will consult the lists of our florists, which are indeed perplexing because of their abundance, especially to those who wish for only a few of the best. The hints here given we trust will be found helpful to our readers, who we feel sure enjoy nothing more than a bed of beautiful roses.

SUMMER MEETING.

This was held in the City Hall, St. Catharines, on Wednesday, the tenth of July. The President, Rev. R. Burnet, of London, called the meeting to order, and after the transaction of some routine business, the meeting proceeded to discuss the question how far the fruit crops of Ontario had been injured by the late spring frosts. Chief Johnson, of Tuscarora, stated that his grapes had been badly injured, and that he should not have half a dozen bunches; while Mr. Taylor, of Hamilton, thought that the near proximity of Burlington Bay had been very serviceable to his grapes, as he should have a medium crop, though further back they had suffered more severely. P. C. Dempsey, of Albury, stated that the grape vines were frozen entirely back, but they had put forth a second growth, but when this was in bloom there came a rain which washed off the pollen, so that the fruit did not set. Strawberries turned out a fair crop. Plums were not injured, and there was every prospect of a most abundant supply. Of pears, there would be a fair crop of all sorts except the Flemish Beauty, which since the fruit set had mildewed very badly and dropped off. The apple crop was thin, but the samples would be very fine. L. Woolverton said that about Grimsby the apple scarcely suffered at all; pears suffered but very little; peaches were more injured than was at

first thought, for they have been dropping off very badly; cherries were a total failure; currants were not hurt, indeed they were the finest they had raised in some time; the grapes were not much hurt.

A. Morse, of Smithville, reported that in his neighborhood the peaches were all gone, but a few grapes had escaped; plums were badly injured; cherries, a failure; pears, nearly half a crop; the raspberry crop never better; currants good; and apples half a crop. Red apples had escaped better than the light colored. W. Saunders, of London, said that on the nights of the 12th and 13th of May the thermometer fell to 26°. Up to that time everything promised well, but this frost killed two-thirds of the strawberry crop; black currants were nearly all killed, and the other sorts badly injured; the cherries were ruined, unless a few Maydukes, and some of the common Kentish; plums were blackened inside and fell off; pears suffered very badly; the injury to apples was sectional, very serious in some orchards; and the crab apples suffered the most; the grapes partially recovered when a second frost injured them, though not as seriously as the first; up to within ten days ago raspberries promised well, but the great heat accompanied with severe drought has dried them up very badly, and the fruit is small; and the apples are falling off from the same cause.

In the vicinity of Port Dalhousie, W. H. Reed informed the meeting the fruit crops had not suffered materially from frost, but that when the fruit trees were in blossom the weather was so wet that the pollen did not fertilize the blossoms, consequently the apple crop will be small, and cherries a failure; but there will be a fair crop of plums; a good crop of gooseberries, currants, and raspberries, and there has been an excellent crop of strawberries. C. Arnold remarked that at Paris the frost destroyed the blossoms of the grapes entirely, but that a second growth on some varieties has bloomed later, so that there will be a few grapes. Those plum trees that had set their fruit well before the frost, and those that bloomed after the frost, have escaped injury; there were but very few blossoms on the pear trees; apples bloomed profusely, and there will be a large crop. In some localities the strawberries were killed, in others they escaped, his own were all killed; raspberries were not injured by the frost, but the extreme dry and hot weather had totally dried up the berries, especially those of the black-cap family; black currants are a poor crop, of other sorts a passably fair crop, as also of gooseberries; the common red

cherries were a total failure, a very moderate crop of other sorts. Wm. Roy, of Owen Sound, reported that there was four degrees of frost there when the strawberries were in full bloom, hence there had been only about a quarter of a crop; there will not be more than one-quarter of the usual crop of plums; apples were materially injured, yet there will be an average crop; pears are badly injured by the frost, but the grapes had not put forth, and so escaped, so that those who have grape vines will enjoy a good crop, though they have not been very generally planted; there were no cherries, but the raspberry crop was large and fine, and the gooseberries are very fine. W. McKenzie Ross said that at Chatham strawberries were badly injured by the frost, and grapes a complete failure; there was plenty of fruit on the quince bushes, and a large crop of the common red cherry, but none of the sweet varieties; apples would be a small crop, but on the shore of Lake Erie it would be good, and likewise a good crop of peaches, and a considerable crop of pears. Jonas Neff, of Port Colborne, states that there had never been a better display of blossoms on the pear trees, but the frost had destroyed them all; and the crop of apples would be small, though the Baldwin trees were well laden with apples; the plums have fallen off; there are no peaches; strawberries and cherries are a failure, but currants are abundant.

R. Werden reported for St. Catharines that though the frost killed the earliest strawberries, yet the crop was one of the largest; the raspberries were also very abundant and good; currants, a large crop; plums set their fruit abundantly, but the Curculio is causing them to drop off; and there is a good crop of gooseberries; apples promise to be only a medium crop. Mr. Laing said that at St. Thomas there was not more than half a crop of strawberries; black currants were a total failure, and of red and white sorts there would be only half a crop; the grapes are all gone; cherries, very few; a good many plums; and a pretty fair crop of apples, which promise to be an excellent sample. Geo. Leslie remarked that about Toronto there had been a medium crop of strawberries; cherries were a failure; and black currants about half a crop there was a full crop of raspberries; an entire failure of plums; and almost a failure in pears, the Flemish Beauty giving the best crop of any variety; grapes escaped the frost; apples set their fruit well, but the late severe drought, which has lasted for five weeks, is causing many of the apples to drop. A. M. Smith said that at Drummondville all

kinds of fruit had been injured; strawberries, apples, pears, &c., were not more than half a crop; cherries, almost a failure; black currants were more injured than the red and white; and grapes were very seriously cut off. At Jordan Mr. Honsberger said the strawberry crop had been fair; raspberries were a medium crop; red and white currants were not much hurt; black currants suffered more, but there was a fair crop; gooseberries are good; peaches, not half a crop, the Crawfords and Foster are hurt the most, Early Beatrice and Early Rivers are well loaded; the apple crop is light, the best show of fruit is on the Northern Spy.

Col. McGill stated that at Oshawa the strawberry crop lost its earliest berries; pears were nearly a failure; no cherries except the common red; and the plum crop would be about one-third as large as usual; grapes never promised better; raspberries were good; and apples not more than half a crop. J. G. Miller, of Virgil, reported that the first growth of the grape vines was wholly killed by the frost, but that a second growth was coming on, and there would probably be a pretty fair crop; there will not be half a crop of apples; the pear crop is very much injured; plums never promised better, and in my grounds have been unable to find a single Curculio, though traces of their work are to be seen; strawberries have been a good crop; cherries, half a crop; peaches will be a light crop; currants abundant; and apricots few.

The meeting then considered the question What new varieties of strawberries are promising well? Mr. Biggar, of Drummondville, thought that the Great American promised to be a good fruit. Mr. Laing, of St. Thomas, that the Monarch of the West is doing well. A. M. Smith named Cumberland Triumph as having done well this year, Great American as promising, and Monarch of the West as large, very productive, and of good flavor; and Mr. Morden thought Long John wonderfully productive. Dr. Watt, of Niagara, remarked that Col. Cheney was one of the best with him. Mr. Stewart, of Virgil, had found the Duchesse to be of medium size, early, very good, and fairly productive; Crescent Seedling moderate bearer, fair size, and good quality; Col. Cheney very productive, even more so than the Wilson, but the fruit was not perfect; Captain Jack to be of small size, very productive, and of good quality; Great American, after two years trial had not done well, the plants seemed to be weak and unable to make runners. Mr. Gilchrist, of Guelph, said the New Dominion had been

about as productive as the Wilson, but was too soft for shipping; and that Col. Cheney had done well. A. M. Smith remarked that he had sent a few crates of the New Dominion to Hamilton and Toronto and had received fifteen cents per quart for them, while the Wilson brought only ten. Mr. Honsberger said he had shipped the New Dominion to Montreal and Ottawa and received no complaints as to the shipping qualities of the fruit.

The meeting spent an hour in discussing the methods of cultivation best adapted to the successful growing of small fruits. As was to be expected, a variety of opinions were elicited, yet the weight of opinion seemed to be in favor of making the soil quite rich for currants, raspberries, and gooseberries; only moderately rich for strawberries, and less rich for blackberries; with plenty of water for strawberries and gooseberries, and thorough clean surface cultivation for all, stirring the surface of the ground frequently. In the case of raspberries and blackberries, members were advised to cut out the old canes as soon as the fruit was gathered; take away any weak or superfluous young canes, and shorten in the remainder.

On the question as to what varieties of the raspberry succeed well, it was conceded generally that the Philadelphia was the most prolific of all, and several thought it also the most profitable, others had found the dark color of the fruit objectionable, and on that account preferred the brighter colored sorts, as the Clarke and Highland Hardy; the Highland Hardy was early, coming in before any other, even before strawberries were gone. Diadem was mentioned as being of fine flavor, and hardy. In Prince Edward County the black cap raspberries had proved more profitable than the red, but this did not seem to be the experience in the western and southern sections.

There was a display of fruit of very fine quality, consisting of cherries, currants, raspberries and gooseberries, but very much less in quantity than was to be expected in such a famous fruit-growing section as St. Catharines and vicinity.

Most of the gooseberries were seedling varieties, raised from the European, and if they continue to be free from mildew they will be great acquisitions. Mr. Scott, of Orangeville, sent some fruit from a seedling gooseberry that he has cultivated for ten years without mildew.

The next meeting will be held in Sarnia, on Wednesday, the eleventh of September next.

HORTICULTURAL GOSSIP. III.

BY L. WOOLVERTON, M.A., GRIMSBY.

THE FRUIT GROWER should read up on science, especially in the subjects of Botany and Entomology. A knowledge of these will help his prosperity very materially, and give weight to his opinions. He should know the principles that underlie his methods, so that he may have independence of action, and not be swayed about by every opinion and superstitious notion of another.

A short time ago a neighbor came to me in great consternation, a large species of Hemiptera, (*Belostoma Americana,*) such as he had never seen before, flew into his window one night. He was terribly frightened, and brought it me, saying, "it was surely an omen of some great calamity!" The same man thought he had made a great discovery. One day, seeing countless numbers of Aphides upon his cherry trees, and many ants visiting them to suck their sweet juices, he at once concluded that the ants brought the lice, and exultingly told us he had found a method of keeping the ants from climbing his trees! Such men in their ignorance of science, will be very likely to mistake friends for foes; and the Lady Beetle or the Calosoma are as much in danger of destruction at their hands as the Aphis, or the Doryphora.

A COMMON MISTAKE IN PRUNING.—We notice those trees need most pruning that have had most of it. Vigorous shoots in the crotches of apple trees, in most cases indicate injudicious pruning. Some people try to make their trees grow dish-shaped, and cut out the central limbs; but nature rebels against such abuse. A little attention to botany shows that every tree has its normal shape, and that all the pruner should attempt is to thin out weak and superfluous limbs, or shorten in long and slender ones. Several young orchards here show much feebleness resulting from abusive pruning.

THE EARLY SEASON.—Blossoms were out three weeks sooner this spring than usual, as is seen by the following comparative memoranda: apple blossoms, May 25th, 1874; May 27th, 1875; May 26th, 1876; May 20th, 1877; May 3rd, 1878. Peach blossoms were out this year on the 24th of April, on which date in 1875, the ground was still frozen up and covered with snow.

THE MAY FROST has done considerable damage. Cherries have suffered worse than any other fruit, for the connection not yet being

severed between the corolla and the receptacle, the frosting of the flower destroyed the fruit also. The peach suffered very little, being protected by the corolla, which was loosened, but not yet cast. Other causes, however, combine to destroy our hopes of a very abundant crop. The apple is intact, with the exception of the Greening and the Russet, which have been somewhat thinned.

THE CURL is a malady which has this year attacked the peach orchards about Grimsby to an extent hitherto quite unknown. It made its appearance toward the end of May, and was a source of great anxiety to some who mistook it for that terrible scourge, the yellows. The leaves curled up, became much thickened with reddish swellings on the upper side. Then they took a yellowish hue, and began to drop, and about the first of June our orchards presented an almost deathly appearance. Fortunately the experience of the past shows us that it does no material injury to the tree, and that we may expect a new crop of healthy foliage. The variety that has suffered most from the Curl with us is the Early Beatrice, from which not only the leaves, but most of the fruit has fallen.

EXPERIMENTS WITH THE GRAPE VINE FLEA-BEETLE.

BY HENRY BONNYCASTLE, CAMPBELLFORD.

Having waited for some time in order to try the effects of several remedies to kill or stop the ravages of the grape vine bug, I beg leave to state that I applied hellebore thoroughly, in both liquid and dry state, without any effect. I then mixed two table-spoonfuls of carbolic acid to one bucket of rain-water, (a strong dose,) and sprinkled the vines well, but this had no effect. I then put two table-spoonfuls of white hellebore to one bucket full of soap suds, producing no effect. I also caught the bug and covered him with hellebore, putting him under a glass, after two days he was as lively as ever. I now find the only plan to exterminate them is hand-picking in the morning when the dew is on the leaf; by doing so I have nearly got rid of them. I now find a small brown slug on the leaves, eating holes in them, this is evidently the offspring of the bug; I also pick them off, thus preventing the breeding for next year. My vines, from being mere bare poles, are now bringing forth buds and leaves, but of course no fruit this year. I should much wish to hear if any remedy has been found.

I find the wild ones in the woods are also infested with the slug. The slug when full grown is about one-eighth of an inch long, brown, and when crushed, full of a yellow liquid; they are on the inside and outside of leaves.

TREE ROSES AND WEEPING ROSES.

Since the remarks in our article on Roses, on the impossibility of growing these in this climate, were written, the following notes on this subject by one who evidently speaks from personal experience have attracted our attention, and we give them a place here because it is desirable that the public should be made acquainted with the fact that they have been tried many years ago, and found to be a failure in such a climate as ours. In a picture, the tree-rose laden with roses of several colors, or gracefully drooping, like a weeping tree, under its burden of pink, and scarlet, and yellow blooms, looks beautiful, and the expenditure of from three to five dollars to possess such an ornament to one's grounds seems reasonable, but it is well to know that at best in a year or two it will fail. Our writer says, much as I admire those beautiful things, standard or tree-roses, I am afraid they will never become really established in our gardens, or do us much good in the long run. I have had in my garden and on my lawn about fifty specimens. They were all, but ten, imported plants, got out by a neighbor of mine at different times within five years. Little by little they have all died off. At first they thrived and bloomed very well. Afterwards they were gradually affected by the winters, and one after another I lost them. Then again, I fancy that our summers are too hot for the tall naked stems. They seem to get dry and shrivelled, and thereby they affect the growth and health of the top. I am all the more convinced of this since I have seen some specimens grown by a neighbor. He covers the stem with moss bound around them. This he leaves on all the year. It undeniably gives more health and vigor to the head, but it also gives the whole tree-rose, so unsightly, bandaged, a look that I cannot endure it in a neat place. On the whole, therefore, I shall feel obliged to return to the old, and in the main more satisfactory mode of growing roses. Farther south, say at Baltimore or Cincinnati, where the weather is not so cold in winter, no doubt standard roses will do better.

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THE CHERRY CURRANT.

This currant has been widely disseminated, and is doubtless to be found in every collection of currants, not only in this Province, but in the sister Provinces, and throughout the United States. Its large size and deep, rich color combine to give it a very attractive and showy appearance, so that it is a beautiful ornament upon the table, looking exceedingly nice and tempting; and in the market attracts the attention of purchasers, commanding a ready sale, and sometimes a higher price than the smaller sorts. Yet in point of quality it is not equal to the well known old Red Dutch, nor to the Victoria, being admittedly only second rate; and is another instance of a fact well known to dealers in fruit, that size and beauty of appearance are of more importance than flavor.

In the writer's experience with this variety, grown upon a moist sandy loam, there has been a lack of that productiveness which has generally been accorded to it. Those who have grown it on a stronger and heavier soil have not seemed to find so much deficiency in this respect. At times, too, it has seemed as though it suffered from the severity of our climate, yet we have met with no complaints from others of this nature, hence we are disposed to the belief that it will be found to thrive best and be most productive on a strong clay soil. Those who find it to thrive well and produce abundantly may plant it liberally for market purposes.

The history of this handsome currant is not without interest. Mons. Adrienne Seneclause, a distinguished horticulturist of Bourgargental, Loire, France, received it from Italy among a lot of other currants, who noticed the extraordinary size of the fruit, and gave it in consequence the name it yet bears. In the year 1843 it was fruited in the nursery of the Museum of Natural History, and figured from these samples in the *Annales de Flore et de Pomone* for February, 1844.

Doctor Wm. W. Valk, of Flushing, Long Island, State of New York, introduced it to the notice of American fruit growers in 1846, having imported some of the plants in the spring of that year.

Some years later a currant was introduced and disseminated under the name of Versailles or La Versailles, for which it was claimed that it was as large as the Cherry, longer in the bunch, and not so acid. Some pains was taken to obtain this variety on different occasions, and from the most reliable sources, so that there might be no mistake as to the correctness of the name, but after many years of trial we are unable to perceive any decided variation either in the quality of the fruit, the length of the bunch, or the habit of the plant, from the Cherry Currant.

A great many names have been given to this currant besides that of Versailles, and designing and dishonest men have taken the opportunity to use them to increase their sales and prices. If any of our readers should have offered to them plants of Red Imperial, La Caucase, Irish Grape, Macrocarpa, or Napoleon Red, they may rest assured that they are only the Cherry Currant under a new name.

THE JAPANESE IRIS. *(Iris Kæmpferi.)*

This beautiful Iris is now attracting very considerable attention. The editor of the *American Agriculturist* says that he saw a bed of these plants in the garden of James Hogg, of New York City, ten years ago, and that after they had stood there long enough to show that they were perfectly hardy, he gave an account of them in the October number for 1870, with an engraving, which though considerably reduced in size, was sufficient to show their great beauty, and how unlike they were to any heretofore known forms of cultivated Iris. He says they come into flower after the ordinary varieties have done blooming; and the flowers are spread out in a flat plate, so that they are best seen when looked down upon; that the flowers are from four to six inches in diameter, and present a great variety in form, color, and marking; there are pure whites, pure blues, and some of the richest imaginable royal purple. Also that in the markings there is the greatest imaginable variety; that nothing can be richer than some of the intense purples and blues, with lines of golden yellow; or more delicate than the whites, with net-work of blue and purple.

We noticed in the same number, *American Agriculturist* for August, a description of twenty of the finest varieties which Mr. Hogg has selected and named, and learn from it that some are double, some semi-double, and others we infer are single; one is blue, mottled and spotted with white, with a fine yellow eye; another is dark pink, pencilled with white; another white, pencilled with purplish stripes, and purple centre, and so on in great variety. Our enterprising florists will doubtless procure them, and soon advertize them, so that our readers will be able to give them a trial.

THE GOOSEBERRY.

Are we entering upon a new era of the gooseberry? There seems to be indications that a race is springing up on this continent, proof to that enemy the mildew, and that need not be ashamed even in the presence of the great gooseberries of the father land. The first step in this direction was taken by the Houghton, which originated with Abel Houghton, of Lynn, in the State of Massachusetts. Then came the Downing, a seedling of the Houghton, larger and better than its parent. Some time after, Smith's Improved, another seedling of the Houghton, was sent out, also an improvement on the parent, but no better than the Downing.

At the last meeting of the Fruit Growers' Association of Ontario, some fine looking gooseberries were exhibited by Chas. Scott, of Orangeville, larger than Downing or Smith's Improved. The history of this variety is thus given by Mr. Scott: "A friend of mine received some gooseberry seed from England, and from it grew some plants from which I picked a berry, and from the seed of it raised about eight or nine plants, but destroyed all except the one from which these were gathered, as they did not seem to have any merit. It has never mildewed with me as yet, though I have grown it for about ten years. It is the only large gooseberry that I can grow free from mildew. I have Roaring Lion, Crownbob, Whitesmith, and others, but as yet have never got a berry from them, as they all mildew and rot off the bushes; and not only the berries but the new shoots are all mildewed this year. This variety is a vigorous, open grower, quite hardy and productive; soil, a sandy loam."

At the same meeting, W. H. Read, of Port Dalhousie, exhibited a large number of seedling gooseberries, mostly of the English type, all of which, he stated, had so far proved perfectly free from mildew on a sandy loam soil. He also showed two varieties which manifested a large strain of native blood; these were fully double the size of the Downing, of much the same color, and judging from the branches exhibited, extremely productive. These also had been quite exempt from mildew.

In addition, we notice that E. P. Roe announces that he has discovered in an old garden in Newburgh, New York, two seedling gooseberries, one of which turns red when ripe, the other and later sort retains its beautiful green color until it drops from the bush, and that both of these are free from mildew. The berries, he says, are large, many specimens measuring three and a quarter by three and a half inches. To the first of these he has given the name of Roe's Early Ruby, and the other he calls Roe's Late Emerald, both of which he intends in due time to send out.

It will be a matter of considerable interest to watch the career of these gooseberries. Should they prove to be mildew proof in other places than those where they originated, and to bear abundant crops of large-sized fruit, a new era in the culture of the gooseberry will have been fairly inaugurated, and we may expect to go on multiplying varieties not subject to mildew, until there shall be no lack of gooseberries of fine size and of excellent quality.

THE ROSE A TYPE OF INFINITY.

FROM THE PEN OF THE LATE A. J. DOWNING.

A fresh boquet of mid-summer roses stands upon the table before us. The morning dew-drops hang, heavy as emeralds, upon branch and bud; soft and rich colors delight the eye with their lovely hues, and that rose-odor, which, every one feels, has not lost anything of its divine sweetness since the first day the flower bloomed in that heaven-garden of Eve, fills the air.

If there is any proof necessary that the rose has a diviner origin than all other flowers, it is easily found in the unvarying constancy of mankind to it for so many long centuries. Fashions there have been,

innumerable in ornaments of all sorts, from simple sea-shells worn by Nubian maidens, to costly diamonds, that heighten the charms of the proudest court beauties; silver, gold, precious stones, all have their season of favor, and then again sink into comparative neglect, but a simple rose has ever been and will ever be the favorite emblem and adornment of beauty.

Now the secret of this perpetual and undying charm about the rose is not to be found in its color; there are bright lilies, and gay tiger flowers, and dazzling air-plants, far more rich and vivid; it is not alone in fragrance, for there are violets and jasmines with "more passionate sighs of sweetness;" it is not in foliage, for there are laurels and magnolias with leaves of richer and more glossy green. Where then does this secret of the world's six thousand years' homage lie? In its being a type of infinity.

Of infinity! says our most innocent maiden reader, who loves roses without caring why, and who does not love infinity, because she does not understand it. Roses a type of infinity! says our theological reader, who has been in the habit of considering all flowers of the field, aye, and of the garden too, as emblems of the short-lived race of man. Yes, we have said it, the secret of the world's devotion to the rose, of her being the queen of flowers by acclamation and forever, is that the rose is a type of infinity.

The rose is a type of infinity because there is no limit to the variety and beauty of the forms and colors which it assumes. From the wild rose, whose sweet, faint odor is wasted in the depths of the silent wood, or the Eglantine, whose wreaths of fresh sweet blossoms embroider even the dusty road sides, to that most perfect, full, rounded, and odorous flower that swells the heart of the florist as he beholds its richness and symmetry; what an innumerable range of shades, and forms, and colors. And indeed, with the hundreds and thousands of roses of modern times, we still know little of all the varied shapes which the plant has taken in by-gone days, and which have perished with the thousand other refinements and luxuries of the nations who cultivated and enjoyed them.

All this variety of form, so far from destroying the admiration of mankind for the rose, actually increases it. This very character of infinity in its beauty makes it the symbol and interpreter of the affections of all ranks, classes, and conditions of men. The poet, amid

all the perfections of the parterre, still prefers the scent of the woods, and the air of freedom about the original blossom, and says,

"Far dearer to me is the wild flower that grows
Unseen by the brook where in shadow it flows."

The Cabbage Rose, that perfect emblem of healthful rural life, is the pride of the cottager; the daily China Rose, which cheats the window of the crowded city of its gloom, is the joy of the daughter of the humblest day laborer; the delicate and odorous Tea Rose, fated to be admired and to languish in the drawing room or the boudoir, wins its place in the affections of those of most cultivated and fastidious tastes; while the moss rose unites the admiration of all classes, coming in as it does with its last added charm to complete the circle of perfection.

Then there is the infinity of associations which float like rich incense about the rose, and that after all bind it most strongly to us, for they represent the accumulated wealth of joys and sorrows which has become so inseparably connected with it in the human heart.

"What were life without a rose?"

seems to many, doubtless, to be a most extravagant apostrophe; yet if this single flower were to be struck out of existence, what a chasm in the language of the heart would be found without it. What would the poets do? They would find their finest emblem of female loveliness stolen away. Listen, for instance, to old Beaumont and Fletcher:

"Of all flowers,
Methinks a rose is best;
It is the very emblem of a maid;
For when the west wind courts her gently,
How modestly she blows and paints the sun [her,
With her chaste blushes. When the north wind comes near
Rude and impatient, then, like chastity,
She locks her beauties in her bud again,
And leaves him to base briars."

What would the lovers do? What tender confessions hitherto uttered by fair half-open buds and boquets, more eloquent of passion than the Nouvelle Heloise, would have to be stammered forth in miserable clumsy words; how many doleful suits would be lost; how many bashful hearts would never venture; how many rash and reckless adventurers would be shipwrecked, if the tender and expressive language of the rose were all suddenly lost and blotted out. What could we place in the hands of childhood to mirror back its innocent expression so truly?

What blossoms could bloom on the breast of the youthful beauty so typical of the infinity of hope, and sweet thoughts that lie folded up in her own heart, as fair young rose buds? What wreath could so lovingly encircle the head of the bride, as that of white roses, full of purity and grace? And, last of all, what blossoms, so expressive of human affections, could we find at the bier, to take the place of the rose? the rose, sacred to this purpose for so many ages, and with so many nations:

"Because its breath
Is rich beyond the rest; and when it dies
It doth bequeath a charm to sweeten death."

PRIDE OF THE HUDSON RASPBERRY.

This is one of the new aspirants for public attention, and as the readers of the CANADIAN HORTICULTURIST desire to be informed with regard to the new things as well as the old, we shall put them in possession of what information we have in regard to this variety. Its origin is shrouded in darkness that can not be penetrated; no hybridist claims to have wedded its parents, and all that can be said of it is that it was found in an old garden in Newburgh, N. Y. "I 'spects I growed," said Topsy, and that is the history of the origin of this new raspberry, it grew. So many varieties of raspberries were grown in this old garden that even guessing seems to be for once at fault. But no matter how it came into existence, especially since no one can ever tell, yet here it is, challenging the world to prove its worth. It claims, among other things, to be very hardy. It is five years old, and has passed through five winters without injury, though wholly unprotected. Hardiness is a very desirable quality in a plant that must stand out in our winters; we may take the pains to protect a few pets, but can not summon the patience to lay down and cover acres of raspberry canes. It pays well, we are told, to take this trouble, but we want a raspberry that will pay well without the trouble. It claims to be a most vigorous grower, and thus far to have thrown up suckers moderately. Raspberry canes that sucker immoderately are an immoderate nuisance. There's the Brandywine, it suckers awful. It is well for this new comer that so far it has not gone extensively into the suckering business, else it would soon be voted more trouble than profit. It has a long

period of ripening, beginning to ripen about the first of July, and having yet on the 24th of July an abundance of green berries and blossom. This is very nice for the private garden, where one requires a quart or so of berries a day, and wants them to continue until blackberry time; but the market gardener does not want to be everlastingly travelling up and down the rows to pick the berries; he wants them to ripen up when their time comes, so that he may pick them and be done with it; he prefers to grow another variety that will come in with a crop afterwards, to being continually gleaning over the same bushes. To compensate in some measure for this, it promises to be a great bearer. On one short cane, three feet high, over six hundred berries were counted, and on a single branch, eighty-eight. Yes, that is considerable. But in growing fruit for market, it does not answer to apply the rule of three to the problem, if one cane, three feet high, will produce six hundred berries, how many will an acre of them produce. It is said "figures do not lie," but they do though; if any one does not believe it, let him try to grow an acre of raspberries by the rule of three, and see how he will come out. However, this variety proposes to do better in this respect than many others, by reason of the great size of the berries; several were picked last summer that measured three inches in circumference. We all remember the amusing *equivoque* of the man who had gooseberries so large that many of them would weigh a pound; how many it took to weigh the pound he forgot to mention. But this is no equivocation, each berry measured three inches in circumference, not many it is true; and some of the canes yielded berries nearly every one of which would measure two and a half inches. And then in flavor it is thought to resemble closely that standard of raspberry excellence, Brinkle's Orange; while the color is that bright-red so popular in the markets.

The plant has the habit of dropping its leaves early, like the Hudson River Antwerp, those at the tips of the canes remaining green, and continuing to grow until the advent of cold weather. It thrives best in northern exposures, and in cool, moist rich soils.

Chas. Downing, our greatest American authority on fruits, says of this berry, "I regard it as the largest, finest, best flavored, and most promising red raspberry that I have yet seen." William Parry, the great small fruit raiser of New Jersey, says, "I consider it superior to any other raspberry that I have seen; plant a remarkably strong,

vigorous grower; fruit of mammoth size, measuring from two and a half to three inches around; bright red color, firm, excellent quality, and very productive."

Perhaps our readers would like to give this promising stranger a trial. It is not the custom of periodicals to advertise gratuitously; but as the object of this journal is to promote the dissemination of good fruit in our country, if any one wishes to procure plants of the Pride of the Hudson, they can get them from E. P. Roe, Cornwall-on-the-Hudson, Orange County, New York, the gentleman who first introduced it to public notice.

LETTUCE.

Who does not welcome with a cheerful satisfaction the first crisp heads of lettuce that grace our tables in early spring? If any there be among our readers who do not feel like rubbing their hands in gleeful complacency as the tender, succulent leaves, nicely folded over each other in delicate whiteness, are placed before them, they had better pass this page by; it will have no interest for them. But those who know how to enjoy a good head of lettuce after the long winter, may derive some pleasure by reading on, even if they do not find anything instructive to them in this short chapter about a very common, plain, simple vegetable.

Those who wish to have nice early lettuce will sow the seed in this month of September, not later than the middle of the month. Having selected a bit of ground that is thoroughly drained, and in good heart; it should be spaded and pulverized in the usual manner, so as to be light and porous, and perfectly friable, and the seed sown in drills. The extent of the sowing will depend upon the number of heads one wishes to winter over. In about a month the lettuce plants will be ready for transplanting into the beds in which they are to pass the winter.

The bed in which the plants are to pass the winter in this climate, is what gardeners term a cold frame. This bed should be of good, rich soil, well pulverized, located in some place sheltered—a spot sheltered by buildings, or tight board fence—from the cold, bleak winds of winter and early spring, yet exposed to the south, so that it may

feel the first warm breath of the south wind, and enjoy all the sunlight as the days begin to lengthen. As a sash is usually about three feet wide and six long, a frame of boards should be set up on the bed by running two boards, set on edge, parallel to each other, and nearly three feet apart, so that the sash may rest on them; and a board at the back ten or twelve inches wide, and another at the front seven or eight inches wide, to give the sash sufficient pitch to carry off the rain and catch to the best advantage the rays of the sun. These boards can be held in their places by nailing them to posts placed in the corners. In a sash of this size, five or six hundred lettuce plants can be safely wintered. That will be quite sufficient for the wants of a family of the average number; those who require more can increase the number of sashes.

The cold frame should be ready to receive the plants by the middle of October. By this time the lettuce plants will be ready for transplanting, and may be set in the frame two inches apart each way. Of course they will need a little attention to see that they do not suffer for want of water, or from weeds springing up among them. When winter approaches, they will need to be protected by covering with the sash at night, and when the weather becomes very cold it will some of the time be necessary to leave the sash on all day. The plants are sufficiently hardy, if properly treated, to endure twenty degrees of frost—that is, they will not perish if not exposed to a lower temperature than twelve degrees, Fahrenheit. But in order to enable them to endure that temperature safely, they should be abundantly aired on every mild day by lifting up the sash at the back, and keeping it tilted up while the weather will admit, and closing it only when necessary. On fine days the sash should be drawn off altogether, and the plants exposed as fully as possible, unless, indeed, the thermometer indicate too great a degree of cold. In this way the plants will be kept hardy and vigorous, able to endure the changes of temperature with no other covering than the sash, even though the thermometer outside the frame falls to zero. In those parts of the country where the cold is much below zero, it will be necessary to add a straw mat to the covering of sash.

When the spring has opened, and the ground become quite settled and in condition for working, a bed should be prepared and the lettuce plants transplanted into it about twenty inches apart each way.

Some fifty of them may be allowed to remain in the frame at a suitable distance apart, and by covering them with the sash at night, and when the weather is cold, forced, so as to make fine heads very much sooner than those in the open ground. If one wishes, a few frames may be prepared in the fall, and filled with leaves or any coarse litter that will prevent the soil in them from freezing, and when the weather becomes mild in the early spring the litter can be taken out, the soil forked over and enriched, and about fifty lettuce plants transplanted into each of these frames, covered with sash, and forced so as to be fit for use by the time the remaining plants can be set out in the open ground.

The variety of lettuce that seems to give the best satisfaction for early spring, is the one found in our seed stores under the name of Gardeners' Favorite. It not only forces well, making large, solid heads, but is exceedingly crisp and tender. For a late crop, we have found no variety that will stand the heat of summer better than Bruce's Nonpareil; besides, it is very tender, and heads well.

FRUIT SHIPPED IN 1877 FROM MEAFORD AND OWEN SOUND.

BY HIRAM BOND, MEAFORD.

Believing that it would be interesting to the numerous readers of the CANADIAN HORTICULTURIST, I have taken some pains to ascertain the amount of plums and apples shipped from two of our towns, during the season of 1877, respectively, Meaford and Owen Sound. There was shipped from Meaford, 5,000 boxes of plums, and 3,000 barrels of apples; Owen Sound, 3,327 boxes of plums, and 1,579 barrels of apples.

Your readers will see by this that although this is but a new county we are not altogether behind in horticulture. And I might say that trees are coming into the county by the thousands every year, and we hope before long to be one of the first counties in the province for apples, plums, pears, cherries, grapes, &c., and in some localities peaches do well. Our prospects this year for apples and grapes are good, but plums, cherries, pears, &c., are light.

THE EARLY HARVEST AND RED ASTRACAN APPLES.

There is a strange fascination about new things, and when a new fruit or new flower is heralded, with considerable flourish of trumpets, great is the desire to see and to possess the stranger. This is quite natural; we all love variety, and the advent of a new fruit produces a flutter of pleasurable excitement among pomologists, quite akin to that produced by some new discovery in the scientific world. But while it is well to be interested in the dissemination and testing of new fruits, it is not well to forget those that have been long and thoroughly tried, and have stood the test. Designing and unscrupulous persons have often availed themselves, and still do and will avail themselves of this love of novelty to sell at high prices fruit trees of some new sort that is not as valuable or profitable as many that might be purchased at a much more moderate cost. To-day it shall be our pleasure to call attention to two of our best summer apples—varieties that have been long tried and have proved themselves to be well worthy of a place in every fruit garden or orchard.

The Early Harvest is of American origin, according to the authorities, but the writer has never seen any account setting forth either the time or place of its nativity. It has been very widely disseminated, and in the last report of the American Pomological Society is recommended for cultivation in thirty-three of the States and Provinces represented in that Association, extending from Nova Scotia to Texas, and from Maine to California.

According to our observation, this variety produces the finest fruit when planted in soils that abound in lime and are thoroughly drained. In rich alluvial soils, and especially if imperfectly drained, the fruit is frequently spotted and cracked, and deficient in flavor. But on the other hand, when the soil is suitable, the fruit is perfectly developed, fair, smooth, and of high flavor. The tree is a moderate grower, comes into bearing early, and yields abundantly. The fruit is of medium size, light yellow with white flesh, juicy, and of a sprightly sub-acid flavor, ripening in the end of July and beginning of August. It is very valuable both for cooking and dessert, and worthy of a place in the smallest collection.

The Red Astracan was introduced into England from Sweden in 1816, and thence it has been brought to this continent, in no part of

which is it more at home than in Canada. The tree is very hardy and will thrive vigorously in places where the Early Harvest would suffer from the cold. It receives the double star of great merit in Nova Scotia and Maine, Michigan and Wisconsin, and twenty-two other States, and that even as far south as Louisiana and Texas. It is reported as doing well in the Counties of Glengarry and Carleton, and may with safety be planted in very cold parts of our Province; yet we have heard of its failing to succeed in Arnprior, in the County of Renfrew.

It is one of our most handsome fruits, being of full medium size, of a dark crimson, covered with a light bloom. The flesh is white, crisp and juicy, of a rich acid flavor. It is an excellent cooking apple, and its showy color gives it great popularity in the markets. It begins to ripen before the middle of August, and continues to ripen its crop gradually, so that it lasts for some time.

These two varieties of summer apples may be safely recommended for general cultivation, and while the Red Astracan is the more hardy sort, and may be planted farther northward than the Early Harvest, yet the latter, on soils abounding in lime, is by no means a tender tree. Having these, the possessor may well be content on the score of early apples, and leave to others the pleasure, and the labor too, of testing new and untried substitutes.

THE ARCHIPPUS BUTTERFLY.

(Danais Archippus.)

The writer was recently examining one of the species of the milk-weed that is grown in our greenhouses, the *Asclepias Curassavica*, when to his surprise there were found several of the larvæ of the Archippus Butterfly feeding upon the leaves. The plants had been taken from the greenehouse and plunged in a frame for the summer, and the female of this butterfly, in her wanderings about the grounds in search of milk-weed plants upon which to deposit her eggs, with a knowledge of botany far beyond that of many a gardener, had recognized this A. Curassavica as a species of milk-weed upon which the young larvæ could comfortably feed.

It is very interesting to observe the habits of insects. They seem to be endowed with some faculties that are not given to animals of a

higher order. By what powers of perception was this butterfly enabled to tell that this plant, which she had never seen before, that cannot endure our climate but must be kept in a warm greenhouse, belonged to that genus of plants which were the proper food of her young? We attain to such knowledge only by much study and comparison; she sailing past on careless wing, without having read the first lesson in botany, knows the foreigner to be a milk-weed, and stops to deposit her eggs upon it, that when the young larvæ hatch out they may have suitable food at hand.

The eggs she lays are very small, conical objects, about the twenty-fifth part of an inch long, white at first, but in two or three days turning yellow, and then just before the time of hatching they become a dull grey. If one of these eggs is examined with a microscope it is seen to be covered with a beautiful net-work of raised lines, the longitudinal lines appearing like ribs joined together by cross lines, and coming together at the apex. The lower part of the egg, by which it adheres to one of the leaf-ribs on the under side of the leaf, is flattened, giving the egg the appearance of a truncated cone, or of one of those conical bullets, which are used in breech-loading rifles. If the reader will look at fig. 11, *a*, he will see a magnified representation of the egg, showing the longitudial ribs and cross lines; and at *c*, the egg of natural size, attached to the rib on the under side of the leaf, just as the butterfly places it.

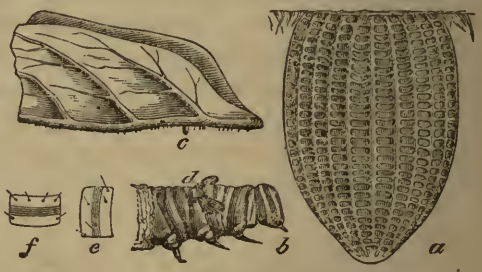

Fig. 11.

In about a week after the butterfly has deposited the egg, there hatches from it a very small caterpillar, not more than the tenth of an inch long. It however grows very rapidly, and soon becomes too large for its jacket. But its jacket is very accommodating, and when the little fellow has got tired of it and wants a new one, the old one splits down the back, so that he can crawl out of it with a new jacket on, and looking as bright and gay as any new suit. And now it is a very pretty little creature, with transverse bands of black, yellow, and white, and a pair of black horns near the head, and another pair not quite so long near the other end. If it is examined with a microscope a few black

hairs will be seen on each segment; these are shown at *e* and *f* in fig. 11.

The caterpillar seems to eat as though eating was the sole purpose of its life, and in consequence it increases in size very rapidly, so that it is obliged to crawl out of its skin twice more before it has attained its full size. This process of changing its coat is called moulting. Just before each moult it ceases to eat for a few hours, but as soon as that process is over, it falls-to again with greater voracity than ever. At each moult the black fleshy horns become longer. The new horns are nicely folded up under the skin, as can be seen at *d*, fig. 11, but soon grow straight after the old skin has been cast off.

If any of our readers, the younger readers especially, have a desire to begin the study of entomology, they will find this insect a very interesting subject with which to make a beginning. The writer can well remember his excursions to a neighboring field overgrown with milkweeds, when he had scarce attained to the dignity of pantaloons, in search of these beautiful larvæ. These he gathered in considerable numbers, confined them in a box, and watched with delighted interest the various metamorphoses they underwent. Those who have never witnessed them, if they have any taste for the study, will be surprised and greatly gratified to watch the changes undergone in the progress from the egg to the butterfly. The creature is of such a size, and so beautiful in all its stages, that there is no difficulty in seeing it at all times, and each step adds some new feature of interest.

When the caterpillar has attained its full size it will be about an inch and three quarters in length, and will have the appearance shown in fig. 12. The markings are very distinct. Each segment has a transverse band of black in the centre, bordered on each side with white, with a yellow band between. After it has reached this stage of its life it ceases to eat, and presently begins to roam about in search of a suitable place to undergo its next change. And a wonderful change it is; instead of a hungry creeping creature, eating voraciously night and day, it is about to fasten itself to a spot from which it can not move, and pass into a condition in which it will have neither mouth to eat with,

Fig. 12.

nor feet with which to walk. To all outward seeming it will have ceased to live; cold, and stiff, and motionless, it will manifest no sense of feeling whatever, nor any symptom of life.

Having found a place suitable for the metamorphose about to take place, which will always be the underside of some convenient support, the caterpillar proceeds to cover a considerable space, a diameter of three or four inches, with fine, white, silken threads, which it spins from its mouth, or from spinnarets placed at the mouth. These silken threads are laid on thicker and thicker towards the centre of the chosen spot, and at the centre a small pointed knob is raised of the same material. All this is done in order that the creature may suspend itself, head downwards, and hang securely by this silken knob without danger of being torn by its weight from its fastenings. Having completed all these arrangements, it proceeds to suspend itself by fastening the hooks on the pair of feet upon the last or anal segment into the silken knob, and when these are secured lets go its hold of the silken carpet with all the other feet and hangs suspended in mid-air, from the underside of some fence rail, or horizontal bar, or if in confinement, from the lid of the box or ceiling of the room.

What strange spell is upon the creature that it leaves its food, which a short time ago was all its desire, and travels off in search of some hidden retreat, some lonely nook? And why is it now travelling round and round within the circumference of a few inches upon the ceiling, laying down so carefully such a network of silken threads? Who has told it to lay them down increasing in thickness from the circumference to the centre? And now it has ceased to travel about, and has stationed itself with its head in the centre of its silken carpet; if you will watch it closely, you will see that it is yet spinning, and now and then it moves its head to the right and left, about as far as it can conveniently reach. As you look you see a little projection is being built up directly under its head, and that these motions to the right and left are made in the act of laying down some anchoring cables that shall fasten it securely to the web or carpet it has fastened upon the ceiling. What schoolmaster taught it that a cone is the strongest form in which it can arrange its gossamer threads? And who told it to go and hang itself thereby, suspended from its hindermost feet? Does it know the future that is before it; the life that lies beyond this gateway of seeming death? *(Continued in next No.)*

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THE ARCHIPPUS BUTTERFLY.

(Danais Archippus.)

If our readers will look at fig. 13, *a*, they will see how the caterpillar appears after it has suspended itself. Yet it is not motionless, but keeps continually stretching forth its head and bringing it in again, with very much the same motion as is made while feeding, with the edge of the leaf between its claws, beginning as far from itself as it can reach, and cutting it down as it draws the head in towards the body. What this movement of the head has to do with the changes that are going on within its body we can not say, but for some reason it keeps up this motion with very little intermission until it is ready to cast off its skin. The approach of this event may be known by its shrivelled appearance, the fleshy horns have become withered and almost dry looking, and the skin is wrinkled and thin. The caterpillar occasionally draws itself up and strains itself, until it succeeds in bursting the skin on the back not far from the head. And now commences a series of movements very difficult accurately to describe, but wonderful to look upon. The creature stretches and contracts its body with an astonishing rapidity, and at each movement forces the skin upwards, until it has reached the spot from which it is suspended. At the hinder, or what is now the upper, end of the body, there has been formed beneath the skin a black little spike, crowned at the extremity with a number of little hooks by

Fig. 13.

which it is to fasten itself to the silken knob from which it is hanging. To withdraw this black spike from the shrivelled skin that envelopes it, and fasten its hooks into the little knob, so that it can hang there while the skin falls to the ground, is the feat now to be performed.

Fig. 13, *b*, represents the creature at this most interesting and critical moment. How shall it sustain itself in mid-air while this is being done? It has neither hands, nor feet, nor mouth by which to hold on and keep itself from falling. And yet it will do this very thing, and though the writer has witnessed this performance probably not less than a thousand times, he has never seen it fail to succeed. Who taught this creature how?

Look now at fig. 13, *c*, and you will learn how it is done. It seizes a portion of the skin between the joints of the upper portion of the body, and compressing the joints together, holds securely by the skin while it withdraws the black spike, and bending it over the mass of skin fastens the hooks with which the point is armed into the silken knob, and then, letting go of the skin, it wriggles itself about, bedding the hooks more securely in the silk, and working the skin loose from its fastening until it drops to the ground.

When this has been accomplished, it ceases its hurried movements, as though wearied by its own exertions, and slowly contracts the upper segments until it assumes the appearance shown in fig. 14. In a little while it will have become quite hard and motionless. If you touch it, there will be no evidence that it feels your touch, and to you it will feel cold and lifeless. But it is a pretty object to look upon, of a beautiful pale-green, dotted with gold, with a crimped band of gold margined with black more than half way around the body; it seems to be a casket containing something of more than common interest.

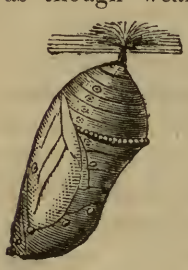

Fig. 14.

In about a week the chrysalis will begin to change its color, gradually growing darker until the green is entirely gone, and the colors of the butterfly within can be distinctly seen through its now transparent walls. The butterfly is now ready to come out of its prison, and while you are watching it a sudden crackling noise announces the fact that the chrysalis has been split, and the head and fore legs of the butterfly begin to appear, followed very speedily by the whole body.

And it looks almost as if it were all body, for the wings are very small indeed, and seem to be but mere rudiments of wings, wholly unsuited to the purpose of supporting such a body in the air. The butterfly now seeks a place where the wings can hang freely, often remaining hanging to the empty chrysalis, or under surface of some support, to which it fastens by means of its claws. In this position the wings grow with a rapidity that is most marvellous. They are not folded up and merely unfolded, but actually grow from the size of the wings of a large bee until they measure four inches across, and that within thirty minutes.

The appearance of the butterfly when its wings are fully grown

Fig. 15.

may be seen at fig. 15. The ground color of the wings is a bright orange-red, margined with black, and dotted with white spots in the black border.

We have given this account of the history of this insect, not because it does any injury to our crops of fruit or grain, but because its history illustrates the metamorphoses of many other insects, and any who wish can easily rear it in confinement, and watch the changes it undergoes.

RISE AND FALL OF SAP.

It is a very commonly received idea that the sap of trees descends in autumn, and when the leaves fall, returns to the roots whence it came in the spring. It does not seem to have once occurred to those who accept this view of the matter, that there would be any difficulty

in cramming a quart of water into a pint cup; perhaps, in order to accommodate the sap, the roots are supposed to be as large and capacious as the trunk and head of the tree; in short, that there is as much tree underground as above. Whence the idea sprang into existence that the sap retires to the roots on the approach of winter, it is not now possible to say, but its very general popular acceptation is an evidence of the way in which false views gain currency because some one ventures to make the assertion, and the public mind stops not even to weigh the probabilities, much less to investigate the ground upon which it rests. Surely the time has come when we should cease to accept assertions upon trust, and demand the facts on which they are based. Having these, we can consider the theory, and if it does not suit us we can make one for ourselves.

Now, in this matter of the sap, by which we mean all the fluids which are contained in the interior of a tree, the facts are these: if the trunk be cut in spring, the sap will run out; in summer, autumn, and winter it will not, except under exceptional circumstances. But nevertheless the sap is in motion in the summer and autumn, and winter too; nay, save when extreme cold may for a time interfere with its flow, it is always in motion; and the reason why it runs out of the trunk in the spring is because it is then present in much greater abundance than at any other season of the year. During the summer, when the tree is covered with foliage, the leaves are evaporating large quantities of the fluid parts of the tree into the air, while another portion is being elaborated and converted into the tissues and structure of the tree, producing what we call growth. When the autumn has come, what with the evaporation and solidification that has taken place, the interior of the tree has become comparatively dry, so that the quantity of sap has become so greatly diminished that it no longer exudes when an incision is made. Our readers are, at least many of them, aware that if a branch be cut off from a grape vine in spring when the buds are starting, the sap will run out quite freely, producing what is called bleeding; but if the same branch were allowed to remain until the leaves on the vine have became fully expanded, then if it be cut off no bleeding will take place. The reason is, that the evaporation which is taking place in the leaves has exhausted the supply of sap to such an extent that there is no surplus in the vine to escape in that way.

The leaves being the principal organs of assimilation and perspiration, it follows that when they have fallen off there is no longer much loss of fluid to the tree from these causes. But the power of the roots to absorb moisture from the earth is not diminished by the loss of the leaves; they continue to draw fluid from the earth, and to send it up into the tree. This action continues, except as modified by extreme cold, all winter; the fluids are drawn from the soil by the roots and sent into the tree, and by the time that spring has come the tree is full of fluids and every vessel distended with sap. During the winter we are not able to find sap by cutting the tree, because the process of filling with fluid is gradual.

M. Biot, many years ago, made some very interesting experiments on the flow of sap, and made a contrivance by which the rate of motion could be measured at any season, and showed that there was considerable activity even in winter. He found that the direction in which the sap moved was very considerably affected by frost. When the weather was mild the sap was always ascending; but when it was freezing weather the sap flowed down. This he attributed to the contraction of the sap-vessels by the cold, which forced the sap into the larger vessels which were unaffected by the frost under ground. When, however, the frost was sufficiently severe and continued to reach the roots, then the sap was forced back into the trunk; but when it came on to thaw and the frost left the ground, the sap returned to the roots. Thus we see that, as a rule, the sap is always ascending, and that when it descends it is because it is forced to do so by some temporary cause, and when that cause ceases to act the sap immediately begins to ascend again.

In connection with the supposed ascent of the sap in spring, and growing out of it, is the popular idea that this ascent of the sap is the cause of the expansion of the buds and leaves. It would be nearer the truth to say that the expansion of the buds and leaves was the cause of the motion of the sap. Any of our readers can make the following experiment for themselves, and see the true state of the case. If a tree be cut into or tapped in some of the upright branches near the top very early in the spring, and be again tapped just below the branches on the trunk, and again just above the surface of the ground, it will be found that the sap will flow from the wound that is nearest to the top first, from the one just below the branches next, and last of

all from the one near the ground. The reason for this is, that the light and warmth tell first upon the excitable buds at the extremities of the tree, and therefore the sap is set into an accelerated motion that lies nearest to them. The gentleman who first made this discovery came to the conclusion that in the spring the sap of trees descended instead of ascending, but he forgot that the moment the buds begin to expand they draw the sap from the parts nearest to them; this causes the sap just beyond to push upwards to supply the place of that taken up by the buds, and as the buds increase and expand is this absorption increased, and the circle of motion enlarged from the buds downwards.

Were it not true that the sap is constantly ascending, we should lose all our evergreens during the very first winter, for the evaporation that goes on in winter from their leaves would soon season the wood of the tree were it not made good from the roots below; and hence it is that some evergreens are killed by a severe winter while they are small, which would survive without injury had they attained to a greater size; for, being small, the roots have not penetrated to sufficient depth to reach below the frozen ground, and consequently cannot draw from the frozen earth in sufficient quantity, nor with sufficient rapidity, to supply the waste by evaporation; whereas when larger the roots will have penetrated quite below the reach of frost, and will be able to draw from the soil sufficient moisture to supply the loss.

TOMATOES.

Messrs. John A. Bruce & Co., seedsmen, of Hamilton, give considerable attention to the testing of the different varieties of vegetables, and after thorough trial find in their experience that Hubbard's Improved Curled Leaf is the earliest. It is small compared with many of the later sorts, and the plant is of a dwarf habit. Next to this they place the Early Conqueror, which is of good size, and very uniform in shape. Then the General Grant, a firm fleshed, bright crimson, productive variety, for the main crop; and after it the Trophy, for a later variety, one of the largest and best flavored of them all. These four sorts, ripening in the order named, they consider the best market sorts. We have found the General Grant very productive, and to ripen its fruit rapidly after it once begins to come in.

THE MONTREAL HORTICULTURAL SOCIETY, AND FRUIT GROWERS' ASSOCIATION OF PROVINCE OF QUEBEC.

It is gratifying to learn that our sister Province of Quebec has succeeded in organizing a provincial association similar to our own, and standing in a similar relation to the government. It has a double existence, arising from its union with the Montreal Horticultural Society, and, as that society, it holds an annual exhibition in the City of Montreal, with a city membership paying an annual fee of two dollars, while, as the Fruit Growers' Association, it publishes an annual report, as an appendix to the provincial agricultural report, and charges the rural members one dollar per year.

Will it seem boastful to say that, from the experience of what has been done in Ontario, we are confident a career of great usefulness is opening up before our sister society; that a vast amount of useful information locked up in individual experiences will now be brought out, and made the common stock of all; that many valuable seedling fruits will be brought from their modest retirement and disseminated, to enrich the orchards and gardens of the whole Province; that a medium of communication will be established between all the fruit growers, that will make them to know and esteem each other, and stimulate to harmonious efforts for the advancement of pomology; and that an increased impetus will be given to the cultivation of fruits, to the originating of new and valuable varieties, and the diffusion of information on all matters involved in the growing of superior fruit.

There is no department of the work accomplished by these associations more productive of benefit to all, than the meetings for discussion of topics in which all have an interest. By means of these discussions, the experiences of many practical cultivators are brought together, and whether they are experiences of success or failure, they throw light on the subject, and serve either as beacon lights to give warning of the danger, or as finger posts to guide into the best and safest way. Many have been saved the trouble and vexation of testing worthless varieties, the experience of one being made the experience of all. Again, when a fruit has proved itself valuable in the hands of one cultivator, there is reason to believe that it will also be valuable in the hands of many.

These meetings for discussion will be the more interesting and valuable the more those who attend them accurately observe the facts that come within the range of their individual observations and experiences, and come to the meetings prepared to impart what they have gathered. We remember hearing a very successful grower of grapes say, when asked about the cultivation of them, that he did not know anything about growing grapes. The trouble with him was that he supposed that everyone knew all that he did on the subject, and merely meant that he had no special method peculiar to himself. He was far too modest; experience had taught him much that others did not know, and it is the giving out of this experience from all that increases the knowledge of all.

THE GRAVENSTEIN APPLE.

Those readers of the CANADIAN HORTICULTURIST who are best acquainted with this apple, will fully corroborate anything that can be said in its praise. It derives its name from the place of its birth, Gravenstein, in Holstein, Germany, and has the reputation of being one of the best apples of Northern Europe. The reputation it enjoys there has been fully maintained by it in America, and here it ranks as one of our very best and most valuable October apples. It has been widely disseminated throughout the Dominion, and is highly esteemed. The trees thrive well in Nova Scotia, and certainly in a large part of Ontario, having been reported as bearing fruit in the county of Renfrew. They are of an upright habit, stout bodied, and form large, spreading heads; come into bearing early, and are very productive.

The fruit is of large size, and when ripe is of a bright-yellow color, most beautifully striped and splashed with various shades of red and orange. The flesh is tender, crisp, and juicy, with a high aromatic flavor; in quality ranking "best." It is excellent as a cooking apple, and as valuable for the dessert, pleasing to the eye by reason of its beauty, and delighting the palate with its exquisite flavor. In the markets it always commands the highest price of any of its season, and on that account may be profitably grown in limited quantity for a convenient market.

It is not desirable to multiply fall-ripening varieties of apples, indeed we already have too many of them for profit. The wise plan will be to select two or three of the very best, and plant enough of these to meet the demand. A very few kinds will meet the wants of the family, and fewer yet will be enough for market. It is a great mistake, but one that is very often made, that of planting out a great many varieties of apples. The experience of all who have grown fruit for profit coincides in this, at least, that a large quantity of only one variety of saleable apples is much more remunerative than the same quantity made up of a great number of kinds.

AUTUMN MEETING.

The usual autumn meeting was held in the Town Hall, at Sarnia, on Wednesday, the eleventh day of September, 1878. President Burnet being absent at the New York State Fair, the Secretary called the meeting to order, which was duly organized by choosing Chas. Arnold, of Paris, chairman. After the reading of the minutes, Messrs. Ebenezer Watson, George Mill, and Townsend G. Vidal were appointed a committee to examine and report upon the seedling fruits exhibited; and Messrs. Joshua Adams, Hugh Smith, and Chas. Duncan, a committee to prepare subjects for discussion. While the latter committee were considering their report, the meeting proceeded to the discussion of pear culture and pear blight.

W. Mowbray grew pear trees in clay soil, in what used to be a garden, but was now in grass, he had not seen any blight, but some varieties winter killed; had found the Flemish Beauty the most hardy. E. Watson had succeeded in getting some very fine pears, but the blight has always destroyed his trees. Near the water the crop of fruit this year is good, but on farms away from the lake shore, the late frosts injured it very much. James Watson had not suffered much from pear blight until lately. His trees are growing in clay soil on the bank of a creek, in the Township of Moore. Bartlett is too tender, Beurre d'Anjou has stood the winters, Doyenne d'Ete, and Burre Clairgeau stand well, Clapp's Favorite does well, is hardy and good, Flemish Beauty has not suffered in any way. Thought he had greatly benefitted some of his pear trees which showed blighted spots on the trunk, by

wrapping over them a mixture of clay, sulphur, and lime. Charles Duncan said that Flemish Beauty and Clapp's Favorite promise to be hardy, and suited to the climate of his section, Township of Moore, and that there had been no blight on these varieties with him. Had found leached ashes very beneficial to fruit trees. Thos. Watson, of Sarnia, had found Flemish Beauty and Clapp's Favorite, and indeed all sorts of pears, to lose their leaves, they would spot and curl up. Joshua Payne said that Flemish Beauty does well, though some of the trees blight, the Bartlett does well, also the Seckel, Clapp's Favorite, and Beurre Clairgeau. Thinks the pear trees do better without cultivation, but spreads a little manure occasionally on the surface of the ground around the trees, which acts as a mulch, and keeps the ground from cracking in drouth. Thomas Watson said that he used saw-dust and chips as a mulch, and found that his trees were infested with the borer, and asked if this mulch was the cause of the attacks of the borer. W. Saunders replied that it was not the cause, and that if an alkaline wash were applied to the trees it would prevent the borer from attacking them, it would prevent the beetle from laying its eggs, or kill them if laid. That it would not kill the borers however if they have got into the tree. E. Watson had never mulched his trees with saw-dust or chips, but had plenty of borers. Jas. Dougall, of Windsor, was asked in regard to Eliot's Early Pear, and replied that it was larger than Doyenne d'Ete, a week earlier, and superior in quality. The tree is a strong grower, and very hardy.

The committee on subjects suggested for discussion the question, what varieties of fruit are successfully cultivated along the shore of lake Huron and the river St. Clair; and how far has the fruit crop in that district been injured by the spring frosts this year? Thos. C. Wheatley, residing near the lake in the Township of Sarnia, said that he had grown only apples and peaches. Of the summer apples, he grew Early Harvest and Red Astracan, the latter had proved the most profitable. The Porter yields well, but is not so marketable as a red apple; he wants a good red apple, ripening after the Red Astracan, for market purposes; has just planted the Benoni to see how that would answer. Rhode Island Greening fruits abundantly, has a good reputation, and is inquired for by purchasers. The Baldwin is not so even in size, and hence not as profitable. Cayuga Red Streak bears when young and abundantly, but the fruit is too large, prefer to handle

smaller apples. The Spitzenburg spots and cracks badly on my sandy soil. Pewaukee has just fruited with me. Have planted largely of Early Crawford, but have not found them to be good bearers, they never have given me more than a quarter of a crop. Hale's Early has done very well with me; at first it did not, but as the trees grew older the fruit rotted, yet I found it more profitable than the Crawfords. Late Crawford generally ripens, but it is not much more prolific than Early Crawford. Serrate Early York does well, but the Large Early York is unproductive. Am pleased with the Amsden; and old Mixon succeeds well, it is large, attractive, and profitable. The frost did very little injury to large fruits in my vicinity, but the strawberry crop was seriously hurt. Raspberries were a fine crop. Peaches were not hurt by the May frost, though we had from two to five degrees of frost. D. Nesbit, of Plympton Township, stated that peaches frequently winter-kill at his place, which is five miles from the lake shore. The seedling peaches were not injured by the late frost, but it seriously injured all the grape vines. With the exception of the Oswego Beurre, which has a good crop, my pear trees have no fruit this year. My soil is clay with a mixture of gravel. James Watson has found that in his stiff clay soil the peach trees do not stand the winter, but die out. James Johnson, of Bosanquet, remarked that on the lake shore apples do well, there being no summer frosts to hurt; this year there is a good crop along the lake for a strip about a mile in width, but further back the frost of last May has seriously injured the fruit. Have found the Old Mixon Peach more hardy than Hale's Early or the Early Crawford. The Concord, Adirondac, Salem, and Isabella grapes ripen well. Plums do well if the trees are jarred and the Curculio destroyed. John Carr, Sarnia Township, says he can not grow peaches well, they winter-kill. Pear and cherry trees do well. Plums rot badly. Have a good crop of apples this year. James Dougall, of Windsor, advised that the rotting plums be gathered as fast as they appear, and taken away from the vicinity of the trees, so as to prevent the rot from spreading. T. D. Watson, Sarnia Township, found all the cultivated peach trees to die down to the ground. The Sweet Cherry trees and the Maydukes did not bear any fruit, did not blossom, though the trees grew well. Seedling peach trees grew and bore fruit. Is too far from the lake to feel the beneficial effects of the water, the late spring frosts this year having killed the fruit in his neighborhood, while close to the lake and

river there was a good crop. James Watson, Moore Township, said that cherry trees, even the Mayduke and Kentish, will not thrive on the clay soil with us, but on the sandy soil they do well; and Charles Duncan added, that we are very subject to summer frosts, which usually injure all our fruit crops. Hugh Smith, of Sarnia, remarked that in that vicinity, what was usually called the Kentish Cherry grew freely from suckers, was hardy and productive.

Inquiry was made concerning the borer in the peach tree, but it did not seem to prevail to any serious extent in that vicinity. W. McK. Ross, of Chatham, complained that it was very bad there, and that he had suffered severely from them. He had also found a snapping or click beetle, brown, and about half an inch long, laying eggs in crevices of the bark near the collar of his peach trees. W. Saunders, London, replied that the larvæ of the click beetles do not bore into living trees, hence no danger was to be apprehended to the peach trees from this source. The Ægeria Exitiosa, which bores our peach trees, looks very like a slender wasp, with a steel-blue body, and in the female the abdomen is marked with a broad orange-colored belt. She lays her eggs upon the tree at the collar, which hatch out and bore into the soft bark at the surface of the ground. Driving nails into peach trees has no effect upon the borer, nor will boring holes into plum trees and filling them with sulphur have any tendency to keep away the Curculio. John Bartlett, Warwick, inquired about the Utah Hybrid Cherry; to which James Dougall, of Windsor, replied that it is not a cherry, it is more nearly allied to the plum, it is only a small bush, and the fruit is worthless.

On the best remedy for the Curculio, the weight of opinion seemed to be that, while in a small yard of plum trees chickens might answer a very good purpose, in larger orchards the best, most convenient, most expeditious, and least troublesome method, was that of jarring the trees and catching the Curculio on a cotton sheet.

Hugh Smith, Sarnia, illustrated his method of changing dwarf trees to standards, by planting a seedling at the foot of the tree, and inserting the top under the bark, thus forming a connection between the tree and the earth through the young seedling.

It being asked what kinds of trees were best suited for shelter, Messrs. Arnold, Beadle, Saunders, and Dougall mentioned the Norway Spruce as being one of the most desirable, it being easily transplanted,

particularly when small, thriving in all soils, very hardy, a good grower, retaining its branches to the ground, and capable of being cut and trimmed in any desired manner. W. McK. Ross mentioned the Arbor Vitæ and the Scotch and Austrian Pines. John Bartlett had found the English Thorn to make an excellent hedge.

The scraping of the bark of apple trees was thought by James Dougall to be injurious, but an alkaline wash beneficial, such as thin soft soap, which he thought better than lime. T. C. Wheatley thought that healthy trees did not need scraping, the rough bark would drop off. W. Saunders thought the scraping off of the rough bark was useful, because by that means so many insects were dislodged and killed, especially the larvæ and cocoons of the Codlin Moth, while the tree, he thought, was not injured by taking it off.

Conflicting opinions were expressed concerning the Robin, Cedar Bird, Red-Headed Woodpecker, and Baltimore Oriole, which have a bad habit of eating cherries, ripe apples, pears, and grapes; some feeling it to be a great hardship that they are prohibited by law from shooting them even on their own premises.

There was a fine display of fruits and flowers, by the Sarnia Horticultural Society, in the hall just above the room in which the meeting was held. Among the apples were very fine samples of Alexander, Gravenstein, St. Lawrence, Porter, and other well known sorts, besides many that seemed to be peculiar to this section of country. In pears, the Flemish Beauty seemed to be the general favorite, judging from the number of dishes of this variety. The peaches were very fine showy samples. Plums were not as abundant as we expected to see them, but the samples were good. There were some very good bunches of Concord, Delaware, and other grapes. We noticed a plate of black grapes labeled "Seneca," but not having an opportunity of tasting them, can not say whether they were the same as the Hartford Prolific, as Downing seems to think, or not. The flowers were a very attractive feature. Some pots of dwarf boquet Asters attracted much attention, from their uniquely beautiful appearance. The Dahlias were very fine, both in form and coloring. The Double Geraniums, Jewel, Marie Lemoine, and Andrew Henderson were remarkably well grown and in fine feather. A few well grown plants of Happy Thought were very much admired. The collection of Begonias, both of the Flowering and Rex sections, was very attractive. Among the Coleus were some

showy specimens of the Shah and Cameleon, which set off the tables to good advantage.

The collection of fruit shown by James Dougall, of Windsor, was a marked feature of the exhibit. He displayed thirty-five varieties of French apples, grown on imported trees, besides his collection of American apples, pears, and plums, of which some were seedlings of his own raising, and all of which were remarkably well grown. His Belle Lucrative, Kingsessing, and Oswego Beurre pears were perfect models of size and beauty.

The committee on seedling fruits brought in their report, which was received and referred. The report says of a seedling summer apple sent by Seth C. Wilson, of Whitby, though now past its season, that it is quite equal to the Early Harvest, and for the table superior; and that a Crab marked 260, raised by Townsend G. Vidal, Esq., of Sarnia, is fine, large, and handsome, and highly commended.

After passing a vote of thanks to the mayor and council of Sarnia for the use of their very commodious council chamber, and many expressions of thanks to the Sarnia members for their kind attentions and interest in the success of the Association, the meeting adjourned.

THE HENRIETTA RASPBERRY.

And still they come. How wonderfully prolific nature is, to be sure. Our readers will have hardly recovered from the effects of the account of that wonderful berry, the Pride of the Hudson, and taken a long breath after its perusal, and now, in the very next number, they are asked to read the story over again under a new heading. When raspberries take a notion to astonish the world, it is surprising what very wonderful feats they can perform. It seems as though there was a rivalry springing up in this matter between the States in the great republic on our southern border. New York has hardly inscribed on her banner, Pride of the Hudson, and nailed it to the mast; than staid old Connecticut, that land of steady habits, seems stirred to her very depths, and in the spirit of Heine, seized Norway's tallest fir, and dipping it in Ætna's crater, with the flaming brand writes on the forehead of the sky, "Henrietta."

This Henrietta is a wonderful creature, she too was never made, she "growed." A chance seedling in the garden among the currant bushes

sprang up in 1871. In 1873 this foundling performed such prodigies in the way of size of fruit and abundance of it, that it was taken in and cared for. Under improved treatment it improved, gratefully acknowledging the kind care it had received, and developed so many valuable qualities that it has been thought worthy of a name and an introduction to the public, both the fruit growing public, and that larger but less critical body public, the *fruges consumere nati*. We believe her foster parents held the levee in her honor sometime in the summer of 1877, and brought out the blushing beauty.

She seems to be a tall young lady, having reached to the height of nine and ten feet, with a girth of two inches and a quarter, and clothed with leaves of unusual size, many of them being five inches across. This foliage seems to remain through the hot and dry weather of July and August, when some of our red raspberries lose their leaves, and present the appearance of bare stems, with probably a small tuft at the top. It is said too, that notwithstanding this great vigor of growth it does not suffer from the cold; that during two winters, in both of which the mercury fell to twenty-four degrees below zero, it stood unprotected without losing even the tip of a cane, while the Philadelphia and Clarke, growing in the same field, were seriously injured. Only think of that, twenty-four below zero and not even a tip injured. That is just the kind of raspberry cane we want in our climate.

And now for the productiveness—does it bear well? Yes, tolerably well, considering its height. Let us try the rule of three. If a cane three feet high yields six hundred berries, how many ought a cane to bear that is nine feet high? Well, we are not told how high this cane was which produced over eight hundred berries, fully one half of which were over three-fourths of an inch, cross diameter, many of them one inch, and a few fully one and one-eighth of an inch. One single branch twenty inches long, produced three hundred and seventy-nine berries. What a pity the plant could not be all branches?

But this variety also continues a long time in fruit, commencing to ripen about the first of July, and if we understand the matter correctly, continuing to yield ripe fruit up to the twenty-ninth of August. Now we do not approve of such a habit, it is a very bad one, and ought to be broken. Does Henrietta suppose we want her raspberries without end? Must we be asked to forego the blackberries altogether? Fie on your self-conceit, Henrietta; suppose you finish

up by the first of August, and give us an opportunity to rest until another season.

In color the fruit is red, and is said to be of high flavor. We are not able to give Chas. Downing's opinion of its merits, he having only committed himself, so far as we know, to the remark that it "is a very promising new variety, with most magnificent foliage." This reminds one of the answer made by a non-committal bachelor, to the inquiry if he did not think a certain young lady just magnificent, who replied, "she has a most magnificent head of hair."

But a hardy raspberry, one that can endure twenty-four degrees below zero without flinching, that bears large crops of large red berries, of good flavor, is worthy of being tested by our fruit growers; and we therefore state that any who wish to give it a trial can procure plants of the gentlemen who first brought Henrietta out, by addressing G. H. & J. H. Hale, South Glastonbury, Hartford Co., Connecticut, U. S. A.

HOW SHALL I WINTER MY GERANIUMS, &c.?

Will you in your valuable periodical spare a corner to an anxious amateur, and say the best manner plants can be protected in winter, where there is neither greenhouse nor cold frames, and the space in the room very limited. The collection consists of Geraniums, Fuchsias, Abutilons, Heliotropes, and Coleuses.

The following method has been suggested for the geranium, which form the larger number of the plants, viz: To take them up, shake the mould from the roots, dry them in the sun for a short time, place in paper bags, tie them up, and keep them free from frost; in spring place in a cold frame, water, and gradually prepare for out door culture.

If any one has tried this plan, will they oblige with the result of their experience.

A GOOD ROSE.

BY J. M. McAINSH, ST. MARYS.

I have just had the Marechal Neil Rose in bloom for the first time with me. The roses are of a deep canary yellow, large, well formed, double, and very fragrant. It well deserves the reputation of being the finest yellow rose in existence. It is too tender to withstand the severity of our winters unprotected, but can be grown as a pot plant, and wintered in a cellar or cold pit.

The Canadian Horticulturist.

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THE YUCCA FILAMENTOSA.

ADAM'S NEEDLE.

The engraving with which, through the kindness of Mr. Vick, of Rochester, N. Y., we are enabled to embellish this page, is an excellent representation of a very interesting and beautiful plant, which is sufficiently hardy to endure our northern climate in some parts of Ontario without any protection, and in others with the aid of the shelter of a few evergreen boughs thrown over it during the winter.

There are not many things of such a tropical aspect that can be grown in our climate, indeed we can not now recall another that so much resembles the Aloes and Century-plants of more southern latitudes. The leaves are armed at their points with a strong sharp spine, while from their edges float slender, light-gray filaments or threads, so that it did not require a very imaginative temperament to see in the spine the needle, and in the filaments the thread, wherewith Adam and Eve sewed together their fig leaf aprons. It is a perrenial plant, and ever green, contrasting strangely with our winter snows, in truth so strangely that it seems like a migratory creature that has failed to wing its way to sunnier lands, when all its mates departed.

Its strong branching flower-stalk, laden with its beautiful flower-bells, is well shewn in the engraving, while the single flower in the corner gives an idea of the form and size of each flower. This stalk rises to the height of about five feet, forming near the top numerous branches, all of which are completely covered with blossoms. These

are of a delicate creamy white, slightly tinged—as seen in the glare of sun-light—with green; but in the moon-light look like frosted silver. It must be seen in the moon-light to be seen in its beauty; then the plant looks stately, and the silver bells glisten and shine in the soft rays of the moon with a most bewitching loveliness. Yet it is not true that it blooms only at the full of the moon. It is too bad to break the charm that Margaret Fuller has thrown over this flower, holding it spell-bound by the moon, unable or unwilling to open its flowers until she shines forth upon it in full orbed brightness; yet we have seen a bed of them that bloomed and faded before the moon came to the full, only here and there a flower upon the almost naked stalks to reflect her light; yet it is none the less true that its beauty can be seen in its perfection only if it be in full bloom when the moon is at the full, shining upon it from a cloudless sky, in the soft air of a July night. One stands and looks at it with wondering eye, amazed at the purity of its whiteness, as though some fairy's wand had touched it since the evening hour, transforming its greenish petals to a frost-work of silver, and turning its dull grey filaments into silver threads.

This plant thrives best in a rich sandy soil, and if planted in a bed large enough to hold half a dozen plants two feet apart each way, and allowed to remain without being disturbed, the plants will increase in size and strength, flowering more and more abundantly. A bed planted with ten of them for four years, produced fifteen flower stems, fully six feet high, upon which the flowers could be numbered by thousands. We hope many of our readers will plant a bed of them, and enjoy the pleasure they will most assuredly give.

THE EARLY CANADA PEACH.

It is quite refreshing in these days of shams to find now and then a genuine article; to find that a fruit, for instance, which has been put forth under certain claims and pretentions turns out to possess all the good qualities claimed for it—that all is not mere pretence, but reality. Three or four years ago we were shown a peach by one of our members, Mr. Allen Moyer, which was then ripe, it was July, and informed by him that he had taken it from a tree growing in a fence corner on the farm of Mr. High, not far from Jordan Station. We were not then

permitted to taste it, but noted that the sample was of good size, and well colored. We were surprised to learn that so large and so early ripening a variety should be found under such circumstances, and ventured the caution that some unnatural cause had brought about a premature ripening. Last year, (1877,) we went with Mr. Moyer to see the tree on the first of August, and found it loaded with fruit which was just ripe, and found that in point of quality and general character, it bore a strong resemblance to Hale's Early, but ripening some time before that variety.

Meanwhile it seems that this variety has been placed in the hands of Mr. Chas. Downing, Newburg, N. Y., and Mr. J. H. Watkins, of Palmetto, Georgia, and from the August number of the *Gardener's Monthly* we learn that Mr. Watkins has fruited, on the same tree, Alexander, Amsden, Honeywell, Early Canada, Brigg's May, Beatrice, Louise, and Rivers, and he says of them "that in appearance the four first "named were strikingly similar, the Honeywell slightly smaller, but "equal to any in flavor, with the exception, possibly, of the Early "Canada, which showed the highest color. If there was any difference "at all in the earliness of the first four peaches, the Early Canada "certainly had it; the Canada is almost a perfect free-stone, adheres "very slightly, unlike the others in this respect, so far as I had an "opportunity to examine. The hardiness of trees, quality, and appear-"ance of fruit, size, flavor, &c., will determine which is most suitable "for general cultivation, the Alexander, Amsden, Honeywell, or Early "Canada, as the slight difference in time, when it exists, is of no "practical value."

Mr. Downing says, "My experience with Alexander, Amsden, "Honeywell, and Early Canada, with two years fruiting, is about the "same as Dr. Watkins, and, as I have before stated, if the four kinds "were put in a dish, it would puzzle a good pomologist to separate "them, and yet there is no doubt but that they are all distinct kinds."

It may be then set down as an ascertained fact that the Early Canada is as early, as large, and of as good quality as the Alexander, Amsden or Honeywell, while to us it has the additional quality of being a native of our climate, and therefore likely the better to bear its peculiar vicissitudes. We trust our cultivators will take the peach in hand, and give us a trace of canadian seedlings, hardier, healthier, and better than imported sorts.

DUCHESS OF OLDENBURGH APPLE.

It is a good many years since this variety was brought to the attention of Canadian fruit growers. There has been time enough to allow of its being tried in a great variety of soils, exposures, and latitudes, and in which to test the quality of the fruit, and to ascertain the position it will take in the markets. The charm of novelty has had time to pass away, and the fruit to assume its true place, the place that will be assigned to it by its intrinsic worth.

Our climate is one that demands of our apple trees a hardy and healthy constitution. It is essentially a cold climate—with quite a range of variation in the degree of cold, it is true, but in no part of our Province toned down to anything warmer than temperate, while in much of it the cold may justly be termed severe. Hence it is of the first importance in a very large part of the country that the apple trees to be planted there should be able to endure a great degree of cold. Owing to the neglect of this very important matter, many hundreds of apple trees have been planted, only to struggle for a time with the rigours of the climate, and sooner or later to give over the unequal contest. The result has been that planters have become discouraged, and have given up attempting to grow apples, under the impression that it is impossible. Those who reside in those unfavorable localities may be compelled to forego somewhat in quality and richness of flavor, and to content themselves with varieties that do not come up to the pomological standard of "best," but fortunately we have even now several varieties that will endure a severe degree of cold, and bear fruit if not "best" in quality, certainly a great deal better than to do without apples.

The Duchess of Oldenburgh has proved itself to be one of those varieties which can bear without suffering a very intense degree of cold, and yield an abundant crop of good sized, handsome looking, and truly valuable apples; and which can therefore be confidently recommended for planting in any place where an apple tree can be expected to grow. The tree is hardy, not only, but vigorous, forms a handsome rounded head, and is truly an object of beauty when the broad glossy-green foliage is set off in contrast with the bright showy fruit. It also comes early into bearing, and every other year yields large crops. The apples are above medium size, very regularly and handsomely formed, quite

uniform, and very free from blemishes of any kind. The skin of the fruit is smooth, yellow, washed and streaked very beautifully with red, and covered with a light-blue bloom, which gives it such an attractive and showy appearance, that it will command at all times a ready sale in the markets. The flesh is yellowish-white, tender, juicy, and of a brisk sub-acid flavor. It is a splendid cooking apple, there being none to rival it in its season. In the County of Lincoln it ripens in the end of August or early part of September. It does not keep long, hence it is not safe to plant it very largely for market, unless assured of being able to dispose of them quickly.

This variety originated in Russia, and from its hardiness one might suppose that its birth place had been quite on the borders of Siberia. It has taken very kindly to our Canadian soil and climate, and gives promise of,—nay, may we not say has already established,—a reputation for fruitfulness, beauty, and utility, in every part of the land.

THE DOWNING GOOSEBERRY.

BY F. J. GRENNY, BRANTFORD.

On page 71, of the report of the Fruit Growers' Association, for 1877, the worthy President says, in his interesting prize essay on "Results accruing from the distribution of trees and plants by the Association," "The gooseberry dissemination was from some cause a failure." This remark does not apply with justice to the Downing gooseberry bush I received from the Association in the spring of 1874. Last year it was heavily laden, and this year the product was carefully measured, result, seven imperial quarts of very fine large berries; every branch was covered with them, hanging as closely together as grapes. The bush is planted in a partially shaded situation, on low land, rather moist sandy loam and black mould. The treatment consists of hellebore for the foliage when needed, with a half bushel or so of coal ashes spread under the bush in the spring, with a light thinning out of shoots from the centre. I have never perceived any signs of mildew, although an English gooseberry bush near it had some mildewed berries after the same treatment.

GREEN NEWTOWN PIPPIN, AND RHODE ISLAND GREENING APPLES.

BY REV. R. BURNET, LONDON, ONT.

Of the last of these two apples it has been justly said, that it is the best to keep, the best to eat, and the best to cook. We might add, the best to carry. It can be marketed anywhere. Of the former, we have the best authority for saying, that "it stands at the head of all apples." Such an estimate is not to be lightly weighed, for it is the testimony of Downing himself. It may be truly said, that the individual who cultivates these two varieties has the best apples for both early and late winter use. Perhaps these two apples cover a greater number of weeks than any other two in the catalogue. The Rhode Island Greening is one of the most esteemed and profitable among early winter fruits; and the Green Newtown Pippin comes into excellence just about the time when the former is going out. We imagine that we have noticed *varieties* in the Rhode Island Greening, we are almost satisfied of the correctness of this statement. The true is yellow-fleshed, "fine grained, tender, crisp, with an abundance of rich, slightly aromatic, lively, acid juice;" the spurious is green-fleshed, not so sprightly or fraiche, and though possessing many of the outward characteristics, has none of the excellencies of the former in perfection. The true cooks as well as it eats, and in February and March is one of the best dessert apples going.

The Newtown Pippin, when in perfection, is acknowledged to be unrivalled in all the qualities which constitute a high flavored dessert apple. It combines the qualities of long keeping, without the least shrivelling, retaining its high flavor to the last. In the Niagara district both varieties attain to their utmost perfection. J. G. Miller, of Virgil, cultivates both varieties with the greatest success, and is skilled in distinguishing the true variety of the Green Newtown Pippin. The color of this apple is dull-green, with a brownish blush on one side, dotted with small gray specks, and its distinguished and unfailing characteristic, delicate russet rays around the stalk. For years we cultivated the Yellow Newtown Pippin, thinking it the genuine Newtown; experience taught us the difference; they are entirely distinct. The Yellow Newtown Pippin is a good apple, but very apt to spot; it grows to an immense size.

We need not say that this short paragraph is intended as a way-mark for intending fruit growers; another contribution to the benefits conferred on the fruit growing community by the HORTICULTURIST.

BEGONIAS.

These pretty plants may be conveniently divided into two groups, the one cultivated on account of their large and beautifully marked leaves, the other grown for their flowers.

Through the politeness of Mr. James Vick, of Rochester, N. Y., proprietor of *Vick's Monthly Magazine*, which is devoted entirely to floriculture, we are enabled to give our readers an engraving of Begonia Rex, which will enable them to form same idea of the markings of the foliage of some of them. They are all beautifully marked, some are dotted with silver spots, others banded after the style of Begonia Rex, with an almost endless variety. The varieties known as Rex, Marshalli, Queen Victoria, and Argyrostigma, are among the most desirable in this group.

The varieties that are grown for their flowers are many of them exceedingly showy, the flowers hang so gracefully from out the foliage, and contrast often so richly with the shining green leaves. The variety known as Fuchsioides is exceedingly graceful and pretty when covered with its coral red bloom. Saundersi is most profuse in its flowering, and is exceedingly gay all the winter long, with its showy crimson scarlet flowers. Many of the tuberous rooted varieties seem to be always in bloom.

All of the Begonias require heat, with a moderate amount of moisture. They do not thrive in a low temperature, and should therefore be placed in the warmest window, and where there is no danger that the plants will be chilled. Those who have a conservatory will find them very easy of cultivation, and very suitable for table or parlor decoration, and the flowering varieties most useful for boquets.

FRUITS GROWN IN THE OTTAWA VALLEY.

BY P. E. BUCKE, OTTAWA.

The Ottawa valley has never been celebrated for its production of the large fruits. The ceaseless borer and the severity of the climate are the chief enemies of the apple. Of this noble fruit, the early summer varieties appear to be borne on the hardiest trees, and are consequently those that are chiefly grown. Amongst these may be mentioned the Red Astracan, the Duchess of Oldenburg, Talman Sweet, Alexander, and the Fameuse. The Brockville Beauty is being introduced, and the Gatineau Belle, a fine showy apple, ripe end of September, proves quite hardy, and though not of first quality is a great aquisition. The St. Lawrence is also sparingly grown. All the Crabs are hardy, but suffer more or less from blight and borers. Apples here as elsewhere are injured considerably by the Codling Moth larvæ. I regret to say I can make no quotations in pears; a few Flemish Beauties have been raised, but the trees are more ornamental than useful, and do not live to "a good old age." Of plums, the most successful are the Common Wild Red, which have been a good deal improved by raising seedlings after the Van Mons system. Sometimes a few Blue Plum trees fruit, but these cannot be relied upon for a crop; in fact none of the finer varieties appear to yield very abundantly. Mr. Greenfield, a great enthusiast and one of our members, has a seedling said to be raised from the Magnum Bonum; it is a good sized red plum, and an abundant bearer, so far it appears to be quite hardy, having been fruited three years in succession; it is quite a step in advance of the best red seedlings from the wild sorts, and if in the hands of some skillful propagator, might be disseminated about the colder districts of the Dominion with advantage; it ripens about the 15th August. The black-knot and curculio are unknown here.

The small fruits, with the exception of the blackberry, are all raised in quantities. The raspberries are all more or less tender when there is a short snow fall, as there was last winter, and although the wild ones are exceedingly plentiful, the cultivated ones sell readily at remunerative prices notwithstanding. The Houghton and other improved native gooseberries are being extensively grown, and also the strawberry. Both these fruits are being largely imported, owing to the western and more southern grown being earlier, and parties from a distance can

supply the market, when the lack of fresh fruit, owing to the long winter, secures for the earliest berries gilt edged prices.

Each succeeding year appears to awaken more and more interest in the fruit business and fruit culture, and though sometimes we raise all the fruit we consume, still nothing is exported from here; and all our winter apples, and most of the summer ones, are imported from the west and from over the line from the United States. Both citizens and grocers are looking for the time when the Alden, or some other equally successful fruit drying establishment, shall have started business in the more favored parts of this Province. Parties having a good dried article of fruit to ship, may be sure of a large and ready sale in this market. Dried fruits have a considerable advantage over green, the freight is cheaper, and they do not spoil by keeping, if not placed in too damp a situation.

I should have mentioned, that although hardly a vine was seen here ten years ago, grape culture is very rapidly extending. The pure bright air and unclouded sky appears to suit this luscious fruit, and though our hot season is comparatively short, the grape ripens as early here as in more western sections. The Champion has so far proved the earliest variety, and though it has no great excellence of quality, it is highly thought of as the first of the season.

HORTICULTURAL GOSSIP. IV.

BY L. WOOLVERTON, M. A., GRIMSBY.

THE ÆSTHETIC IN HORTICULTURE.—We think that in no department of rural life are there so great inducements to the cultivation of a refined taste as in horticulture. The farmer must year by year turn up his soil and plant over, so that no arrangement is permanent; but the grower of fruit plants trees that are to endure for two or three generations. The latter may plan out his roadways throughout his orchards, and decorate them with ornamental trees and shrubbery; he may also remove all those hideous cross-fences which disfigure a grain and stock farm, and if he has means, so arrange his trees and driveways that his grounds shall almost deserve the name of park. We know some would cry out against such waste of valuable ground; we plead for it nevertheless to a greater or less extent, according to circumstances.

Is everything to be for the mouth and nothing for the eye? Is the body to have all, and the mind to starve? Was it not a wise hand that gave the purple bloom to the grape, and the blush to the apple? Might not the sun have given us as much comfort, and yet never have tinted the western sky with glorious hues? And who will say that these things are not beyond money value? So also will it be with the home and its surroundings; and while we cultivate our gardens and fruit farms for profit, why shall we not mingle the beautiful with the useful, and so cultivate a refinement of taste that shall be a source of pleasure through life?

The Apple Tree Pruner.—This beetle, whose technical name appears to be *Stenocerus Putator* (Peck,) is becoming almost too friendly a visitor among our orchards. Twelve years ago, at a meeting of the Fruit Growers' Association, at St. Catharines, the first specimen noticed in Canada was exhibited by Mr. Arnold, of Paris, as may be seen by consulting the Fruit Growers' Report for 1870, p. 75. If its pruning were done with an eye to the symmetry of the tree we would not object to its increase, but when we find it only consults its own convenience, and prunes off limbs that are loaded with fruit, we decidedly place it among the enemies of the fruit grower. The larva is but little more than half an inch in length, and has six small legs. Its jaws are peculiarly fitted for boring in hard wood, which it does with wonderful neatness and precision. The infant grub first uses its jaws in boring through the soft young wood of the twig in which it hatches, but soon finds its way to the heart of the larger branch. Before transforming to the pupal state it cuts the branch in which it lives nearly off, but cunningly leaves a few threads that it may creep safely into its burrow before the fall to the ground. The winged beetle appears in the month of June, and belongs to the *Cerambycidæ*, or family of long-horned beetles, so named from their long recurved antennæ, which are very prominent.

We add the following account of its habits, taken from the report above mentioned. "The parent beetle, with a view to provide soft and easily masticated food for the tender jaws of the infant grub, lays its eggs in the green fresh growth of a twig proceeding from a moderate sized limb. The young worm, immediately upon its exit from the egg, burrows down into the centre of the twig, and consumes all the soft pulpy matter of which it is composed. By the time it reaches the

main branch, it has become sufficiently matured to be able to feed upon the strong meat of the hard wood, and accordingly makes its way into the branch, leaving the hollow twig to gradually wither and drop off. It now eats its way downwards a short distance, half an inch in the specimen before us, through the centre of the branch, and proceeds deliberately to cut off its connection with the tree, and make its way to the earth by the shortest possible route. This, however, is a somewhat delicate operation, and requires the exercise of all the insect's wonderful instinct or skill, for were it to knaw too much of the wood away the branch would break during the proceeding, and probably crush the workman to death. But with admirable forethought and precision, it leaves the bark and just enough woody fibre untouched to sustain the branch until it has time to make good its retreat into its burrow. 'But,' as Dr. Fetch relates, 'the most astonishing part of this feat remains to be noticed. The limb which he cuts off is sometimes only a foot in length, and is consequently quite light; sometimes ten feet long, laden with leaves, and quite heavy. A man, by carefully inspecting the length of the limb, the size of its branches, and the amount of the foliage growing upon them, could judge how far it should be severed to insure its being afterwards broken by the winds. But this worm is imprisoned in a dark cell only an inch or too long in the interior of the limb. How is it possible for this creature, therefore, to know the weight and length of the limb, and how nearly it should be cut asunder? A man, moreover, on cutting a number of limbs of different lengths so far that they will be broken by the winds, will find that he has often miscalculated, and that several of the limbs do not break off as he designed they should. This little worm however, never makes a mistake of this kind. If the limb be short, it severs all the woody fibres, leaving it hanging only by the bark; if it be larger, a few of the woody fibres on the upper side are left uncut in addition to the bark. If it be very long and heavy, not more than three-fourths of the wood will be severed. With such consummate skill does this philosophical little carpenter vary his proceedings to meet the circumstances of his situation in each particular case.'

Having performed this operation successfully, and closed its hole, that the jarring of the branch when it falls to the ground may not shake it out, the grub retreats to where it first entered the limb, and goes on eating up through the heart for about six inches or a foot, and this it

does both before and after the branch reaches the ground. The object of this amputating process it is difficult for us to understand fully; but the obvious remedy for these singular insects, when they attack fruit or other valuable trees, is to gather up the fallen limbs and burn them before the grub has time to complete his transformation into the perfect state."

THE GLUT IN THE APPLE MARKET.—The year 1878 has not been a prosperous year for the fruit grower in many ways. Cherries failed completely; strawberries fell to a price that scarcely paid for picking and marketing; and now, (Sept. 1st,) fall apples have followed suite. From $6 per barrel apples have fallen to $1.50 in Montreal market, and one shipment of ordinary quality was sold as low as $1.25 per barrel, which, after deducting cost of barrel and expenses, left about fifty cents for the fruit.

Our commission agent in explanation wrote: "We are sorry to have to make such a poor show for apples, but the fact is, our market is so loaded with American fruit, which is selling at from $1 to $1.50, and fine apples they are too, that we cannot do better than follow suite. We think that when good Canadian, hard keeping apples begin to come in, they will command better prices."

The natural lesson from this is that it will not pay to trust largely to fall apples for market. Good keepers are the only ones with which we are not liable to be overstocked. Still there are two or three varieties of fall apples that have kept up to fancy prices notwithstanding the demoralized state of the markets. The Gravenstein, the Duchess of Oldenburg, and the Cranberry Pippin, coming along in succession with a profusion of beautiful fruit never fail of attracting buyers at high prices. The Fall Pippin has completely lost favor in many sections as a market variety, on account of its spots, which start decay in the apple as soon as it is placed in heaps, or in the barrel.

The commission system we think a good one so long as the connection be made with an honorable house. The writer has shipped in this way for the past five years, with, on the whole, satisfactory results. As a rule however it seems best to choose such houses for consignments as do not mix matters. A commissioner should confine himself to that branch in order to gain confidence, otherwise he may be suspected of putting his own goods to the front, and sacrificing those he has on commission to attract custom; or in a full market he

may allow goods on commission to waste, in order that his own may be sold to advantage.

THE YELLOWS.—It appears, as has been shown by a previous writer in these pages, that we are in danger of an invasion from this plague of the peach orchards. Growers here, being unable to get sufficient quantities of home grown trees, have in time past imported largely from the States, without sufficient enquiry about their origin. In this way some trees have been imported in which the Yellows was hereditary, and is now showing itself.

The premature ripening of the fruit, the spotted skin, the deep color about the pit, the appearance on the tree of adventitious shoots, slender, and bearing yellowish leaves, all prove conclusively that we have need to beware of danger, and speedily to destroy every vestige of such trees from our orchards.

At a recent meeting of the peach growers, in the Town Hall, Grimsby, the following resolution was moved by the writer, and carried: "That whereas we are made aware of the presence of the Yellows in one or two peach orchards about Grimsby, therefore *Resolved*, that we do most strongly advise every grower to carefully watch the first indications of its approach, and at once to uproot every tree affected by it; and further, to use the utmost caution in the selection of trees for planting."

The following letter will be of interest in this connection.

NEWBURGH, N. Y., Sept. 11, 1878.

MR. A. M. SMITH, Dear Sir:—Your favor at hand, and in reply say that you describe the Yellows very correctly. I know of no positive cure, and the only preventive that I know of is to mark the trees when you discover that they are diseased and remove them the following fall, otherwise those standing near will take it the next season. The first appearance of the disease is that one or two branches will ripen their fruit a week or two before the usual time. When you notice this, mark your trees and remove them. We have had the Yellows here at intervals for over sixty years, sometimes continuing for five or six years and then several years free from it. But much depends upon the care that is taken to keep rid of it, not only yourself but your neighbors. Very respectfully,

CHAS. DOWNING.

THE GLADIOLUS.

In our climate there is no part of the garden more gay during the month of August and continuing often into September than the bed devoted to the Sword Lilies, as the Gladiolus is commonly called. Such has been the improvement wrought by skillful hybridization that we have now an almost endless variety of colors and markings, many of which are exceedingly beautiful. They are the off-spring of two species, G. floribundus, which is a native of the Cape of Good Hope, and was brought to England about the year 1788; and G. psittacinus, a native of Port Natal, from whence it was brought in 1829. The first hybrid was raised on the continent of Europe, and received the name of G. Gandavensis, from the town of Ghent. The hybrid variety has been found to cross freely with all other varieties and with some of the species, and to this we owe the many beautiful and showy varieties which we now possess.

There are many other species of Gladiolus than the two above named, some of which are hardy, while many of them are so tender as to require greenhouse culture. Johnson mentions in his Gardener's Dictionary more than fifty different species and sub-species. These have been laid under contribution by those who have interested themselves in the improvement of this flower, and so far as has been found practicable, made to contribute to the beauty of our garden hybrids.

These garden varieties thrive best in a rich well drained loam; soils that are cold and wet are not suited to them. If one can command a good loamy soil, with a porous gravelly sub-soil, he may be sure of growing these beautiful flowers in their greatest perfection. However, such a soil is not by any means indispensable, the writer having grown them for many years with very good success where the sub-soil was a very firm sandy hard-pan. In preparing beds for the Gladiolus it is necessary to avoid all fresh, partially fermented or undecomposed manures, for these tend to produce disease in the bulbs, or properly speaking, corms. Thoroughly rotted cow-dung is the best manure for them. An excellent compost is formed by putting up a

heap of sods in alternate layers with cow-dung, and when the sods have become rotten, mixing the heap thoroughly together. It is well to spade a good dressing of this into the bed intended for the Gladiolus in the fall, leaving the surface rough during winter, and then spading it again in the spring just before planting them out. In this way the manure becomes thoroughly mingled with the soil.

After the weather has become settled and danger of severe frost is past, the corms may be safely planted out, say ten inches apart each way, and four or five inches deep. Our seasons are often very dry, and when planted deep the Gladolias do not suffer from the drouth as much as if set more shallow. If it is desired to keep up a succession of bloom, plantings may be made every fortnight until the middle of June. As soon as the plants appear above ground they will require to be carefully hoed and the ground loosened and stirred. This should be done occasionally during the growing season, in order to keep down the weeds and the ground loose, so that air and moisture may penetrate. Unless the plants are actually dying from drouth it is not desirable to water them.

As soon as the stalks and leaves turn yellow in the fall, or the frost has killed them, the corms should be taken up, spread in the sun and dried rapidly. The stalks should be cut off about an inch from the crown, the corms separated, the larger packed in a box with dry sand and stored in some cool dry place that is perfectly free from frost, and if it is desirable to multiply them as fast as possible, the little tiny bulblets that will be found at the base of the large ones may be saved, put up in paper bags and stored away where they will keep safely not only through the winter but also through the summer and the succeeding winter until another spring. If these little things are planted out the first spring, hardly one in a hundred will grow, but if they are kept over until the second spring not one in a thousand will fail to grow and form corms that will bloom the following summer.

Our climate is much better suited to the cultivation of the Gladiolus than that of Europe. The seedlings that are raised in America are much finer than theirs, and if our amateurs would turn their attention to the selection and hybridization of this flower, we would soon have a much better race than any that can be imported. If the seed be gathered and sown as soon as ripe it grows readily, and if one has a greenhouse may be kept growing, with short intervals of rest, and

made to bloom in less than two years. The seed may be kept until spring, and sown in boxes by those who do not have the convenience of a greenhouse, and made to bloom the third year.

Except for those who make a specialty of this flower, there is nothing gained by purchasing named varieties at high prices. A dozen of mixed colors of very fine varieties, without name, can be purchased for one dollar, or a mixed dozen of those which have white ground color variously marked, or pink ground with different colored markings, can be had for a dollar and a half to two dollars per dozen. These massed in beds will give as much satisfaction to ordinary cultivators as the named sorts.

Some idea may be gained of the varied coloring of these flowers by reading the description of a few of the named sorts which is here given.

Achille; beautiful currant red, with a white stripe in the middle of each petal.

Antonius; cherry colored, slightly tinged with orange, blazed with carmine red, with very fine pure white stains.

Ceres; pure white, spotted with purplish rose.

Diomede; white, flamed with crimson, with dark carmine violet blotch.

Eldorado; clear yellow, the lower petals streaked with red.

Fulton; velvety vermillion, with bright purple blotch.

Horace; rich scarlet, large pure white blotch, feathered red.

Rosea Perfecta; fine rose tinted with violet, and white veins on all the petals.

Vesta; pure white, with purplish carmine blotch on yellow ground.

They are very useful as cut flowers for parlor or dining room decoration, for if the cut stalks be put in water all the unopened buds will blossom in succession as though they were yet united to the parent stem.

The accompanying engravings which we are enabled to place before our readers, through the courtesy of Mr. Jas. Vick, of Rochester, N. Y., give a good representation of the plants when in flower.

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FRUIT AT THE PROVINCIAL EXHIBITION.

Although the late spring frosts of 1878 very considerably lessened the quantity of apples, they probably had the effect of improving the quality of those that remained, by the thinning out which the fruit received. There has never been a finer display of apples at any of our Provincial Exhibitions than that presented in the Horticultural Hall this year. The quantity of fruit which was entered for exhibition was so much in excess of previous years, that the building designed to contain the horticultural products was quite inadequate, and the managers found it necessary to remove the flowers to the Dairy building. When the exhibits were finally arranged, the grand gathering of apples, pears, plums, peaches and grapes was a most magnificent sight, and told a tale of the fruit producing capacities of our country, for which every true Canadian may well be grateful. It is something indeed to have one's lot cast in such a land as ours. Such rich and luscious fruits, beautiful to the eye and exquisite to the taste, in such variety and profusion, are not the least among the valuable products of our soil and climate.

It may be interesting to the readers of the CANADIAN HORTICULTURIST to take a glance at the varieties of apples and other fruits that in the opinion of the judges merited the highest honors. Such a review is often not only interesting as a matter of curious inquiry, but of no small importance to one who is seeking to acquaint himself with the best varieties, so that he may have some guide in the selection of sorts for his own planting. Prizes were offered for the best collections of thirty different kinds of apples, and of twenty different sorts; for the best six varieties of fall and of winter for table use, and for the best six sorts of fall and of winter ripening apples for the kitchen. In so large a number as thirty or even twenty different kinds, it is not to be expected that only those of the highest excellence will be shewn, yet the number of varieties of apples now in cultivation is so great

that a collection of thirty sorts should not contain any kinds of inferior quality.

The collection of thirty varieties which received the first prize was grown near to St. Catharines by one of the active members of the Fruit Growers' Association, Mr. Allen Moyer, of Jordan Station. It was composed of the following sorts: Alexander, a very large and showy sort introduced from Russia, and which thrives well in Ontario, particularly in the northern sections, ripening in November, and is valuable for the kitchen. Baldwin, a native of the State of Massachusetts, quality "very good," keeping well through the winter, tree tender in the colder sections, but where it is not affected by the winter an early and abundant bearer, and considered one of the most popular and profitable of market apples. Ben Davis, a variety that has not been very extensively grown in Ontario, but one that has a reputation at the west for being very hardy, bearing young and abundantly, fruit fair, even size, carrying well, and keeping until March, but quality not above "good." Blenheim Orange, an old English sort, large, handsome, showy, sells well, and is a good cooking apple until January. Cayuga Red Streak, also known as Twenty Ounce Apple, very large, showy, cooking fruit. Cranberry Pippin, a handsome apple that keeps until February, and is esteemed for the kitchen. Chenango Strawberry, also known as Sherwood's Favorite, a very pretty, oblong conic apple, of "very good" quality, ripe in September and October. Colvert, a large oblate, fall cooking apple, the tree is a handsome grower and immense cropper. Esopus Spitzenburg, one of the very "best" in quality, of good size, and bright red color, keeping until March and April, but the tree is not a good bearer, except on limestone soils. Fall Pippin, many years ago this was one of our best late fall apples, excellent for table and for cooking, keeping until Christmas; for some years it has been liable to spot and crack, but where it escapes this spotting it is an excellent fruit. Gravenstein, a very handsome and popular September and October apple, excellent for the table and for cooking, tree bears early, and is very productive. Golden Russet, a profitable market apple, medium size, "very good" quality, keeping well until May. Gloria Mundi, a very large, greenish-yellow, November cooking apple. King of Tompkins County, a large, dark red, winter fruit, "very good" in quality, but not proving to be as profitable a market sort as was anticipated. Melon, or Norton's Melon, an apple of the "best" quality, very tender flesh, and agreeable

flavor, but the tree is a very slow grower. Pomme Grise, a favorite Canadian Russet, small in size, but of "best" quality. Rhode Island Greening, a very well known and exceedingly profitable and popular winter apple. Ribston Pippin, one of our "best," of good size, handsome appearance, and commanding the very highest price in the English markets, ripening here in October and keeping until New Years. Roxbury Russet, also called Boston Russet, a very late keeping sort, of "good" quality, and popular in the markets. Rambo, of medium size, quality "very good," thriving best in light, sandy soils. Swayzie Pomme Grise, in quality very "best," size medium, keeps until May and June, a valuable Canadian dessert fruit. St. Lawrence, another popular Canadian apple, thriving best in the colder sections, ripe in October, quality "very good." Swaar, a very fine fruit, quality "best," tree tender in our colder sections, thriving best in a warm sandy loam, fruit ripe in March and April. Snow Apple, also called Fameuse, an exceedingly popular Canadian fruit, quality certainly "very good" if not "best," handsome dessert, keeping into January; the tree is hardy, and the fruit finer flavored when grown in the northern districts. Northern Spy, a fruit of high quality, almost "best" when well grown, keeps all winter, retaining its spicy sprightly flavor to the last; tree comes late into bearing, and requires high culture. Talman Sweet, the best sweet winter apple for cooking that we have, tree hardy and productive. Vandevere, or properly Newtown Spitzenburg, handsome, medium size, quality "best;" in damp, cold soils the fruit spots badly, but in warm limestone soils it is free from blemish, keeps until February. Wagner, medium size, very tender juicy flesh, quality "very good," is becoming popular, and likely to be extensively planted, ripe in January and February. Yellow Newtown Pippin, quality "best" when well grown, succeeds best in a warm limestone soil, fruit very apt to spot and become scabby in our climate, and although the fruit sells for the very highest price in the English market, is not likely to prove a profitable variety here. Yellow Bellflower, large, oblong, quality "very good," ripe in January and February, not profitable for market.

The first prize for the best twenty varieties of apples was awarded to W. Hill, of Barton, near Hamilton. In looking over the varieties shown by him we noticed only four sorts not to be found in Mr. Moyer's collection of thirty sorts. These are Peck's Pleasant, good sized, when ripe, clear yellow with a blush on the sunny side, and having a very

pleasant aromatic flavor, quality "very good," ripe in January and February; this variety has not been much planted in Canada, the tree being so moderate a grower when young that nurserymen will not be likely to grow it largely. Maiden's Blush, a very handsome fruit, ripe in autumn, good only for cooking. Keswic Codlin, a popular cooking variety, in use from August to October. Dutch Mignonne, handsome russety yellow, striped with light and dark red, quality "very good," ripe in January.

In coming down to smaller selections we find that the first prize was given to Allen Moyer for the best six varieties of fall table apples, in which he exhibited Gravenstein, Fall Pippin, Chenango Strawberry, Ribston Pippin, St. Lawrence, and Snow; and that A. M. Smith, of Drummondville, took the first prize for fall cooking apples, with Alexander, Blenheim Orange, Cayuga Red Streak, Fall Pippin, Fall Janetting, and Maiden's Blush; and likewise the first prize for winter table, with Ribston Pippin, Pomme Grise, Swayzie Pomme Grise, Spy, Seek no Further, and Wagener. The six varieties of winter cooking that took the first prize were Baldwin, R. I. Greening, Yellow Newtown Pippin, Ribston Pippin, King of Tompkins County, and Spy.

A glance at these lists will show our readers what varieties of apples ripening in the fall and winter are most esteemed among us, and from which any intending planter will be able to make a selection suited to his own tastes and objects. Necessarily an exhibition held late in September must be wanting in our summer fruits. We look usually in vain for such varieties as Early Harvest, Red Astracan, Benoni, Summer Rose, and often fail to find the hardy Duchess of Oldenburg. With a few of these one can make the circle complete if he wish, and enjoy apples at dinner all the year round.

We turn now to look at the pears, and learn what varieties are grown in Ontario that stand highest in the estimation of the judges of fruit. The first prize for twenty varieties was awarded to Gage J. Miller, of Virgil, near Niagara, comprising the following sorts: De Tongres, much resembling the Beurre Bosc in form and color, of large size, and "very good" quality, ripening in October. Vicar of Winkfield, a large pyriform fruit, pale yellow when ripe, in use during December and January, very variable in quality, sometimes "good" to "very good." Beurre Clairgeau, large and handsome, fawn color shaded with crimson, quality "good," ripe in November and December. Lawrence, of medium size, russeted lemon yellow, quality almost

"best," in use in December and January. Gansel's Bergamot, large, obovate in form, quality very variable in our climate, sometimes "very good," often very poor, ripe in September and October. Flemish Beauty, very large, handsome, quality "very good," ripe middle and end of September, tree very hardy, and succeeding well in cold sections of the Province. Beurre Gris de Hiver, full medium size, "very good" in quality, ripe in January. Beurre d'Anjou, large "very good," ripe in November and December; a favorite fruit with the Hon. M. P. Wilder, President of the American Pomological Society. Beurre Bosc, large, handsome, pyriform, quality "best," ripe end of September and often continuing through October, tree not hardy enough to endure the climate of our northern districts. Louise Bonne, large, very juicy, quality "good," yet somewhat variable, especially on light soils. Seckel, a small, well known variety, of the very highest quality, ripe in September, and continuing in October. Bartlett, a large, yellow, handsome, well known sort, largely grown for market. Belle Lucrative, medium to large, very juicy and sweet, quality "very good," ripe late in September or beginning of October. White Doyenne, full medium size, pale yellow, high flavored, quality "best," ripe in October, of late years this fruit has been liable to spot and crack very badly, often destroying the whole crop. Josephine de Malines, medium size, greenish yellow, "very good," ripe in January and February, one of the best of the late winter varieties. Duchesse d'Angouleme, very large, greenish yellow, quality "good," ripe October and November; grown on the quince stock the fruit is of better quality than when grown on the pear stock. Goodale, large, light yellow, "very good," ripe in October, tree very hardy. Sheldon, medium to large, flavor rich and vinous, quality "very good" to "best," ripe in October. Howell, large, waxen yellow, "very good" quality, ripe latter part of September and first of October. Winter Nelis, not more than medium size, yellowish green with considerable russet, quality "best," ripe in December and January.

There were some very finely grown specimens of many of these varieties exhibited by W. T. Taylor, of Rochester, New York, for which he received the prize for the best ten varieties, with Beurre d'Anjou, Duchesse d'Angouleme, Beurre Bosc, B. Diel, B. Gris de Hiver, B. Clairgeau, Bartlett, Louise Bonne, Sheldon, and Howell.

A. M. Smith, of Drummondville, received the first prize for the best fifteen varieties, which collection contained, in addition to the

Seckel, D. d'Angouleme, B. d'Anjou, Bartlett, Louise Bonne, White Doyenne, Vicar of Winkfield, Sheldon, and Flemish Beauty, the Mt. Vernon, medium size, light russet, quality "very good," ripe in December and January, tree very prolific. Beurre Diel, large, very variable in quality on light soils, on clay soil usually "very good," ripe in November. Easter Beurre, large, late keeper, ripening in March, quality "very good." Buffum, small to medium, "very good," ripe in September, does well on sandy soil, though somewhat variable in quality. Glout Morceau, large, greenish yellow, "good" to "very good," ripe in December; the tree is one of the most subject to blight of all the pears.

The prize for the best six varieties was awarded to Geo. Leslie, Toronto, who exhibited Beurre Clairgeau, Louise Bonne, Sheldon, Bartlett, Flemish Beauty, and Duchesse d'Angouleme.

In Plums there was a very good display of varieties, but not the profusion of exhibits we have sometimes had. The collection of twenty varieties exhibited by Gilchrist Bros., of Guelph, to which the first prize was awarded, will give a very good idea of the sorts that can be successfully grown and that are held in estimation among us. The collection embraced the Peach Plum, large, light red, juicy, "very good;" McLaughlin, large, yellow marbled with red, "best;" Duane's Purple, large, reddish purple, "good;" Yellow Egg, very large, yellow, a cooking plum; Quackenboss, large, purple, "good;" Bradshaw, large, reddish purple, "very good;" Prince Englebert, large, deep purple, "very good;" Victoria, large, yellow shaded with purple, "good;" Lombard, medium size, violet red, "good;" Glass Seedling, large, deep, purple, "good;" Columbia, very large, brownish purple, "good;" Prince of Wales, large, reddish purple, "good;" Marten's, large, yellow dotted with red in the sun, "very good;" Red Gage, small, brownish red, "best;" Early Orleans, medium size, dark red, "good;" Green Gage, small, yellowish green, "best;" Reine Claude de Bavay, large, greenish yellow, "best;" Pond's Seedling, very large, bright red on a yellow ground, "good;" Saint Catharine, medium size, pale yellow, "very good;" Coe's Golden Drop, large, light yellow, "very good."

There was also a very good display of grapes, unexpectedly good, remembering the unusual trials through which our grapes passed during the last season. The prize for the best twelve varieties, and the prize for the best six, grown in the open air, were awarded to S. Woodley, of Hamilton. His collection of twelve varieties comprised

the Delaware, small in berry and bunch, light red, sweet and sprightly; Wilder, large, black, sweet, and rich; Agawam, large, dark red, vinous, and a little musky; Martha, medium, greenish yellow, much like a Concord in flavor; Iona, also medium, light red, vinous, and excellent; Rebecca, medium, light greenish yellow, sweet and pleasant; Rogers' No. 44, large, black, sweet; Barry, large, black, juicy, and sweet; Senasqua, full medium size, black; Concord, large, black, sweet, musky; Creveling, medium, black, very agreeable flavor; Perkins, medium, copper color, foxy.

The display of peaches was smaller than usual, the fruit having ripened up so early that little was to be found at the date of the exhibition wherewith to make a display, and any enumeration of the varieties that were exhibited would fail to convey any adequate idea of the kinds that are grown in our peach growing districts.

We close this already too lengthy article in the hope that it may prove valuable as a guide to many of our readers who are planting orchards of fruit trees, or seeking to make additions to those they already possess; and with the suggestion that this annual fruit exhibit affords an excellent opportunity for becoming acquainted with at least the external appearance of many of our most valuable fruits.

EXPERIENCE IN WINTERING GERANIUMS.

BY W. ROY, OWEN SOUND.

An anxious amateur wishes to know how to winter Geraniums. I had a very fine bed four years ago, and when frost set in was loth to lose them. I dug them up, cut them down, shook the earth from the roots and hung them up in the cellar all winter, and not one grew the following spring. I tried the same method next fall, but did not cut them down until spring, the same results followed, not one grew. Last fall I dug my bed up with as much earth as possible, put them in boxes, gave them winter quarters in the cellar, gave them a little water now and then. When planting time came round I cut them down to about five inches, every one grew and made a splendid show all summer, and at this moment (Oct. 12) are brilliant. I brought them up and nursed them two or three weeks before planting out; but the better plan for amateurs is to take cuttings at the end of September, plant them in equal parts of turf, mould, and sand, nurse carefully through the winter, and they will have much better plants for bedding out in June.

TOMATOES.

BY REV. V. CLEMENTI, B. A., PETERBOROUGH.

The last number of the CANADIAN HORTICULTURIST contains a list of what are described as the "four best sorts" of Tomatoes. Permit me to recommend three others to the notice of your readers, the Hathaway, the Acme, and last, but not worst, the Criterion.

The last named I have grown for the first time during the past season, and have been much pleased with it. It is plum shaped, and rather small, but of a delicate flavor and pleasing appearance, and is a most prolific bearer. Its color is red and yellow, and in many instances it is very prettily mottled. At our last horticultural exhibition it attracted much attention, and obtained a first prize. I enclose a water-color sketch of one of an average size, many are larger and some smaller.

While writing about tomatoes, I may mention that in our neighborhood we have been much plagued by an immense number of the larvæ of the Five-spotted Sphinx, *S. quinquemaculatus*, during the past summer. The caterpillars are commonly called "Tomato Worms," and are vulgarly supposed to be poisonous; I need scarcely add that the latter imputation is altogether foundationless. Like many other larvæ, they eject, when handled, a drop of liquid from their mouths, but this is quite innocuous. I killed about one hundred of these caterpillars in my own small garden, a number which, if left to their own wicked wills, would speedily have utterly defoliated the whole of my stock of plants.

The above engraving of the Criterion Tomato has been prepared from the water-color sketch of Mr. Clementi, and will enable our readers to form a just conception of its size and general appearance.

HORTICULTURAL GOSSIP. V.

BY L. WOOLVERTON, M. A., GRIMSBY.

How to Pack a Barrel of Apples.—Few growers of fruit are aware how much their success in the markets depends upon the manner in which their fruit is packed. And this matter is worthy of especial attention now that the apple is becoming so important an article of export from Ontario, because only such as have been properly put up will be purchased for shipment to foreign markets.

The best place for packing is in barns, or under cover of sheds, where wet weather cannot hinder, for apples should always be dry when handled to preserve their bright fresh appearance. They may be brought into the store house on a drag, either in bushel baskets or in barrels, which latter need not be emptied till packing time. If emptied in heaps, a few inches of straw should be first placed upon the floor, and the depth should not exceed two or three feet. Practically however, the most of our orchardists pack from heaps in the orchard.

The following suggestions for packing may prove useful to some of the readers of the Horticulturist.

1st—Put the name of the variety on the head of the barrel with a stencil, in the first place, because when headed up mistakes are easily made as to the kind enclosed.

2nd—Take out the bottom end and pack first the end intended as the head, placing in the first two layers by hand with the stems downward, so that on being opened the barrel may present a nice even appearance.

3rd—Select carefully, throwing out all wormy, spotted or bruised specimens, to be sold as culls or made into cider, and making the quality uniform throughout the barrel. The deceptive practice of making a fair show at both ends, and hiding poor stock in the middle deserves the severest censure as dishonest; besides proving the worst policy in the end, for what buyer would be twice deceived by such contemptible fraud.

4th—The barrel should be gently shaken several times while being filled, to settle the apples closely; after which the end will need to be pressed down only about three-quarters of an inch, for which purpose a lever or screw press will be found almost indispensable. Experience

will soon teach just how much pressure is needed to keep the fruit from shaking about in transit. This is an important point, for nothing would sooner spoil a cargo of apples, or indeed of any other fruit, than rattling about in the barrels or other packing cases.

5th—Line both ends securely, for it is not an uncommon occurrence for the barrels to burst open with rough usage on the passage; and tighten all hoops, using only enough nails to hold them in place.

6th.—Mark upon the head of the barrels the address of the consignee with a stencil plate, adding also some distinctive mark or monogram by which the shipper may be known in the market.

The reward of such care may not be reaped the first year or the second, but in time a reputation may be gained that will command a corresponding price for all fruit shipped.

THE KING OF TOMPKINS APPLE.—This apple is proving itself very desirable for cultivation in Ontario, at least on the Niagara peninsula; this season particularly, it has yielded an abundant crop of beautiful fruit. It is supposed to have originated in Wayne County, New Jersey, and has borne in different places the names, King Apple, Tom's Red, and Tommy Red. We have seen it growing in Chenango Co., N. Y., where it is accounted a very sparse bearer, but with us it has yielded for more than one season an abundance only surpassed by such heavy bearers as the Baldwin and Roxbury Russet. It has fewer culls than the Northern Spy, which is the only large apple we would rank superior to it in quality; the latter producing a great many small uncoloured specimens on the under branches, while if the King hangs until about the first week in October, every specimen will become deeply shaded and splashed with crimson, and be uniformly large and showy. So fine a size does it attain that we find it not uncommon to fill a barrel with one hundred and eighty specimens of average size. The flavor is exceedingly agreeable, being rich and vinous, making it the best for cooking purposes; its large size alone debarring it from being also classed as best for dessert. It keeps nicely until February or even March, so that in this respect it has the advantage over the highly esteemed Esopus Spitzenburgh.

As a market apple it is rising rapidly in favor. In Glasgow, where red apples are very popular, the King commands the highest price, and only this season has been quoted at from $5.00 to $7.00 per barrel, which however it may be wise to look upon "*cum grano salis.*"

THE OLD KENTISH CHERRY.

BY A FELLOW WORKER.

When now I look back to when I was a boy,
And muse on those objects that then gave me joy ;
Though few things of childhood in manhood will please,
There's sometimes a life-long attachment to trees.
Some flowret or shrub in our garden or lawn
Oft carries us back to life's earliest dawn ;
And there's nothing impress'd on my memory more plain
Than the old Kentish Cherry that grows in our lane.

The Snow-drop and Crocus, the vanguard of spring ;
What bright recollections these little flowers bring.
The Daphne Mezereon, whose venturesome flower
Sends forth its fragrance with the first April shower.
Our own native Balsam with its silvery spray,
And that noble old evergreen Spruce of Norway ;
These all have their charms, but my thoughts turn again
To the old Kentish Cherry that grows in our lane.

Through association some objects we prize,
Though the sight of them start a tear in our eyes ;
Yon grapery Janet planted, south of the hill,
Though long she's been dead, and her voice is now still,
'Neath that vine fancy sees her, and hears as of yore,
When sweetly she sang "Stilly Night" of Tom Moore.
And when I first heard her, oh, I mind it so plain,
'Twas beneath the old cherry that grows in our lane.

But apart from all this, I admire thee, old tree ;
Through many long years thou hast fruit yielded me,
Which for canning, and drying, and baking in pies,
From thy high titled cousins thou bearest the prize.
And could I induce thee, ere saying adieu,
To marry thy flowers to some rich Bigarreau.
Throughout our lov'd country, through time, shall remain
The fame of the cherry that grew in the lane.

PARIS, October 18th, 1873.

MOORE'S EARLY GRAPE.

In the February number, page 22, we called attention to this new grape as one of considerable promise, it having received from that very careful and cautious body, the Massachusetts Horticultural Society, a prize for the best early grape. Since that time it has been tested another season, and received from that society the prize of sixty dollars for the best new seedling grape. It has also been exhibited before other societies, and received several first prizes. We have been so fully persuaded that it was a variety worthy of the attention of those who grow grapes in Ontario that we have requested Mr. Moore to send us an engraving shewing the form and size of the bunch and berry, so that the readers of the CANADIAN HORTICULTURIST may be able to form a correct estimate of its general appearance. We are happy in being able not only to say that Mr. Moore has kindly acceeded to our request, so that we are able to give the engraving in this number, but has also sent an advertisement, which will be found in its appropriate place, informing our readers where, and at what price, they can secure plants that they can rely upon as being genuine.

This grape first bore fruit in 1872, being one of a lot of two thousand five hundred seedlings raised by Mr. Moore, and every year since that time it has been under examination by the fruit committee of the Massachusetts Horticultural Society, so that they have taken ample time to test its merits before it received the sixty dollar prize. The fruit, as will be seen on looking at the engraving, is large both in bunch and berry, the berries being as large as those of the Wilder or Rogers' number four. The color is black, with a heavy blue bloom, and the quality considered to be better than that of the Concord. The vine is stated to be exceedingly hardy, having been exposed to a temperature of twenty degrees below zero without injury, and has also been entirely exempt from mildew. It ripens ten days earlier than the Hartford Prolific, and twenty days before the Concord.

The fruit committee, who examined several hundred of the vines growing in the same vineyard with the Hartford Prolific, found the fruit fully ripe on Moore's Early, while the Hartford Prolific was not ripe, requiring a considerable number of days more to bring it to maturity. The earliness and hardiness of this grape are qualities of

considerable moment to all who grow grapes in our climate, whether they be grown by amateurs for their own tables, or on a more extended scale for the market. It is true that ripe grapes can be brought by express from more southern latitudes, and so come in competition with our earliest sorts, yet the more freshly gathered fruit will ever receive the preference, and the cost of transportation is always in favor of the nearer article. The large size and showy appearance of this grape will enable it to command attention in any market, while the quality of the fruit is sure to give satisfaction.

We hail with much pleasure the advent of these new grapes raised in high latitudes, believing that from them the Canadian will be able to make a selection of sorts that will make him quite independent of more southern vineyards. The Burnet Grape, disseminated by the Fruit Growers' Association, of Ontario, last spring, we believe will prove to be a most valuable variety in Canada; and we expect to find other sorts, such as this Moore's Early, and seedlings of Wm. Haskins, W. H. Mills, and others not yet sent out that will be planted with it, and give us a great abundance of delicious grapes, ripening early, and able to endure unharmed all the rigours of our climate.

A PLEA FOR OUR SMALL FRUITS.

The farmers of Ontario seldom need to be urged to plant fruit trees, they are awake to their value both for home consumption, in the restricted sense of the producer's household, and for market. They would not like to be without their apples especially, they are so very convenient and agreeable, can be used in so many ways, and contribute so largely to the comfort of the whole household. But the same can not be said of the small fruits. They have not yet been allowed to command the share of attention which their value deserves. The reason of this may in a large measure be found in the fact that they require attention after they have been planted, else they will yield no fruit. The apple tree, once established, is able largely to take care of itself, and in spite of entire neglect will yield considerable fruit. Not so with our small fruits. They require cultivation, to be kept free

from weeds, regularly supplied with food, and to be properly trimmed. To do this was irksome, especially to one who did not know how to do it properly. Besides, it was small business in comparison with the more important crops of the farm, and the farmer felt that weightier interests demanded all his time and thought. There is some change in this respect for the better, but not all that there might be, not all that a true appreciation of our small fruits will yet produce. Those farmers who live near to the larger villages and towns have many of them discovered than an acre or so of small fruits is a very profitable acre, and well repays all the outlay for planting, tilling, and fertilizing. In a pecuniary point of view it pays. But we wish to call the attention of our readers to the fact that a supply of small fruits sufficient for the daily use of the farmer's family during their season pays large, pays better than the village or city market, pays in many ways, pays far beyond any money value. Will it be necessary just here to stop and demonstrate that the acquisition of money is not the most important object in life? True, many live as though it was. To very many it doubtless is. There are men who will sacrifice health, and peace, and even life itself in the acquisition of money. But does it pay?

There is something of value in being able to supply one's table with an agreeable variety. It is not conducive to our happiness or our health to be confined to a very limited number of articles of food And He who best knows the wants of the physical man has furnished us with not only the staff of life, but with many other articles of food as adjuncts to that, which play no unimportant part in the perfect development and healthful continuance of our bodies. The wise man will seek to avail himself of these, and will find in our summer fruits a convenient and designed supply. As the summer heat begins, how grateful is the strawberry, with its mingled sweet and sour, counteracting the bilious tendencies of the season, and refreshing while it gratifies. Scarcely will it have passed away before the raspberry comes to continue the acid tonic with a change of flavors, thus enticing us in the use of a diet so healthful, until the ripening of the currants, and the gooseberries and the blackberries, and the grapes, as the season advances, gives ample scope for all our likes and dislikes, and an abundant supply of nutritious food and most agreeable medicine. For the sake of your health then, and that of your families, you will set

apart some convenient spot for the cultivation of these small fruits, so that from the time that the strawberries ripen until the frosts come again, there will be fresh fruit upon the table every day.

Besides promoting the health of yourself and family, you will be adding largely to the enjoyment of all, and specially of the children. Who has not noticed the eager fondness of children for fruit? There is scarcely anything that delights them more. If then a few rods of ground devoted to small fruits will contribute not only to the health but to the happiness of your children, will it not pay? Will not anything pay that makes home more attractive to your children? Home, home, with its delightful memories, not the least of them the visions of delicious strawberries, and fragrant raspberries, and scarlet currants, and huge blackberries, and clusters of grapes.

But it pays also in an increased intelligence. One can not cultivate his garden of small fruits without calling into exercise his intellectual faculties, and that in many ways. He will think in a different line from that which his mind traverses when he is engaged in the other and ordinary pursuits of the farm. The mind is enlarged by the contemplation of an enlarged variety of subjects. To grow these small fruits successfully one must study their requirements, not a difficult study by any means, but this exercise of the mind in another channel quickens its perceptions and awakens its activities. Besides, from the very nature of the operations, so different from the rougher and more muscular operations of the farm, there is brought into action the more delicate, shall we not say the more refined, qualities of thought and action, so that the man becomes more complete and symmetrical intellectually. And the children will grow up with enlarged knowledge and more refined tastes, just in proportion as the ordinary routine of farm life is varied and enlivened by the cultivation of those things which are usually embraced in the term horticulture.

On the score then of intelligence, of refinement, of health, of enjoyment, we commend to our farmers the cultivation of small fruits. Remember, we say cultivation, not the planting and leaving of them to take care of themselves; that is worse than not to plant at all, for it only ends in disappointment and disgust. But a garden of small fruits, well and lovingly tended, will repay a thousand fold all the care and thought bestowed upon it, in the increased health, happiness, intelligence and refinement of its possessors.